

Singapore Management University

Institutional Knowledge at Singapore Management University

Research Collection Lee Kong Chian School Of
Business

Lee Kong Chian School of Business

9-2014

The deterrence effects of vicarious punishments on corporate financial fraud

Daphne W. YIU

Singapore Management University, daphneyiu@smu.edu.sg

Yuehua XU

William P. WAN

Follow this and additional works at: https://ink.library.smu.edu.sg/lkcsb_research



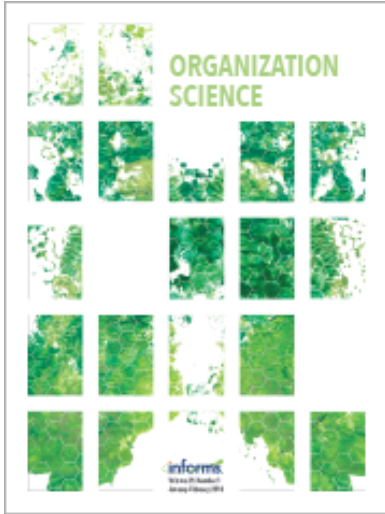
Part of the [Corporate Finance Commons](#)

Citation

YIU, Daphne W.; XU, Yuehua; and WAN, William P.. The deterrence effects of vicarious punishments on corporate financial fraud. (2014). *Organization Science*. 25, (5), 1549-1571.

Available at: https://ink.library.smu.edu.sg/lkcsb_research/7322

This Journal Article is brought to you for free and open access by the Lee Kong Chian School of Business at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection Lee Kong Chian School Of Business by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email cherylds@smu.edu.sg.



Organization Science

Publication details, including instructions for authors and subscription information:
<http://pubsonline.informs.org>

The Deterrence Effects of Vicarious Punishments on Corporate Financial Fraud

Daphne W. Yiu, Yuehua Xu, William P. Wan

To cite this article:

Daphne W. Yiu, Yuehua Xu, William P. Wan (2014) The Deterrence Effects of Vicarious Punishments on Corporate Financial Fraud. *Organization Science* 25(5): 1549-1571. <https://doi.org/10.1287/orsc.2014.0904>

Full terms and conditions of use: <https://pubsonline.informs.org/Publications/Librarians-Portal/PubsOnLine-Terms-and-Conditions>

This article may be used only for the purposes of research, teaching, and/or private study. Commercial use or systematic downloading (by robots or other automatic processes) is prohibited without explicit Publisher approval, unless otherwise noted. For more information, contact permissions@informs.org.

The Publisher does not warrant or guarantee the article's accuracy, completeness, merchantability, fitness for a particular purpose, or non-infringement. Descriptions of, or references to, products or publications, or inclusion of an advertisement in this article, neither constitutes nor implies a guarantee, endorsement, or support of claims made of that product, publication, or service.

Copyright © 2014, INFORMS

Please scroll down for article—it is on subsequent pages



With 12,500 members from nearly 90 countries, INFORMS is the largest international association of operations research (O.R.) and analytics professionals and students. INFORMS provides unique networking and learning opportunities for individual professionals, and organizations of all types and sizes, to better understand and use O.R. and analytics tools and methods to transform strategic visions and achieve better outcomes.

For more information on INFORMS, its publications, membership, or meetings visit <http://www.informs.org>

The Deterrence Effects of Vicarious Punishments on Corporate Financial Fraud

Daphne W. Yiu

Department of Management, Chinese University of Hong Kong, Shatin, Hong Kong, dyyiu@cuhk.edu.hk

Yuehua Xu

Lingnan College, Sun Yat-Sen University, 510275 Guangzhou, China, xuyueh@mail.sysu.edu.cn

William P. Wan

Department of Management, City University of Hong Kong, Kowloon Tong, Hong Kong, william.wan@cityu.edu.hk

This study extends the research on corporate financial fraud by developing a new perspective on the deterrence effects of vicarious punishments premised on social learning theory. We posit that firms vicariously learn about punishments from their peers by picking up modeling cues, environmental cues, and social cues in the inhibitive learning process, thus being deterred from committing future fraudulence. Using a matched sample of 604 observations of Chinese listed firms between 2002 and 2008, our findings show that an observing firm is deterred from committing fraud if the peers in its industry are caught and punished. We further find that such deterrence effects are subject to how the observing firm evaluates the possibility of being caught and the likelihood it will be punished the same way if it violates similar prohibitions. In particular, inhibitive learning effects are positively moderated by punishments of prominent firms and model–observer similarity but negatively attenuated by the development of the legal system. Our study sheds light on the corporate fraud literature by illuminating the indirect, inhibitive learning process from vicarious punishments and identifying the conditions for differential learning/deterrence outcomes of the observing firms.

Keywords: vicarious learning; corporate financial fraud; corporate governance; social learning theory; deterrence; China
History: Published online in *Articles in Advance* April 28, 2014.

Introduction

To date, research on corporate financial fraud has mainly focused on studying either the antecedents or outcomes of corporate financial fraud in relation to the fraud firms (e.g., Beasley 1996; Chen et al. 2005, 2006; Kang 2008; O'Connor et al. 2006; Zahra et al. 2005); little attention is paid to examining the punishment effects on, or behavioral outcomes of, the observing firms. In reality, although the administrative penalties are levied on the fraud firms, the goal of such penalties is usually intended by the regulator to be more far-reaching to deter future wrongdoings by other listed firms. Nevertheless, our knowledge regarding whether and how administrative penalties are effective in such deterrence is severely limited. Given that the deterrence of corporate financial fraud is of critical importance for the integrity and development of any financial market in the world, and administrative penalties are core regulatory, sanctioning mechanisms used by stock exchanges to punish fraudulences and regulate proper behaviors, an in-depth assessment of their effectiveness is useful to better comprehend the deterrence effects of vicarious punishment in corporate financial fraud. Therefore, the main purpose of our study is to fill this research gap by examining the deterrence effects of stock exchanges' administrative penalties on the observing firms' future fraud occurrences.

The indirect deterrence effect of punishment on the observers is known as vicarious punishment in the social psychology and criminology literatures. By witnessing peers punished for transgressed behaviors, the sanction not only informs the observers that such violations are illegal or inappropriate but also produces fears and alters sanction threat perceptions in the observers, thereby inhibiting similar violations when the observers are tempted with prohibited objects (Bandura 1971, 1977; Stafford and Warr 1993). Viewed in this way, the sanction itself produces inhibitive learning effects among the observing peers. Because of its far-reaching deterrence effects on the observers, vicarious punishment constitutes an important role in the regulatory and punitive system (Trevino 1992) and is regarded as particularly relevant in uncertain environments where formal rules and regulations are inadequate and unclear, and reliable information comes only from the cues furnished by observations or social learning (Bandura 1969).

The way the deterrence effect of vicarious punishment takes place can be extrapolated from social learning theory. Social learning theory (Bandura 1968, 1977) posits that the observation of a punishment incurs the formation of punishment expectancies by the observers, who will then regulate their own behaviors and elicit response behaviors accordingly. The distinguishing characteristic of the social

learning process is the underlying cognitive and evaluation process in which the observers regulate their own behaviors by self-generated anticipatory consequences resulting from observation (Bandura 1971). Our study is interested in this unique aspect of the social learning process and particularly focuses on the observing firms. Specifically, we examine why and how observing firms may exhibit heterogeneous response behaviors by picking up various cues in the social learning process. Because vicarious learning requires an identification process in which the observers match or identify themselves with the punishment target such that they will subsequently have contiguous association of the sensory event (Bandura 1969), our study focuses on examining the vicarious punishment effects within the same industry, as firms mainly learn from the experience of other firms in the same industry which are their reference groups (Lampel et al. 2009), and industry peers have been found as keen observers of one another (Baum and Singh 1994, Glynn and Abzug 2002, Peteraf and Shanley 1997). As such, our key premise is that vicarious punishment of the fraud firm can deter its peer firms in the same industry from committing future corporate financial fraud.

To delineate the social learning process, we draw on the premise that the deterrence effect of vicarious punishment lies mostly in its informational value (Schnake 1987), and we propose that fraud punishments of industry peers, as *modeling cues*, signal information about consequences of violations to the observing firms in the same industry, thus deterring them from committing similar violations in the future. Nonetheless, the deterrence effects may vary because observing firms will evaluate the possibility of being caught and the likelihood they will be punished in the same way if they violate similar prohibitions. As such, we further propose that the effects of modeling cues are moderated by the environmental factors that influence the comparative judgment of the informational value of the punishment (*environmental cues*) and how much the observing firm identifies with the punishment targets—that is, the fraud firms (*social cues*) (Ashforth and Mael 1989, Fiegenbaum et al. 1996). In essence, our theoretical model incorporates the observing and evaluating effects of the observer and examines the interactions between them, thus highlighting heterogeneity in perceptual deterrence and inhibitive learning effects of vicarious punishments.

We tested our arguments in the transition economy of China. Transition economies provide an ideal context to test the effects of vicarious punishments of stock exchange, given that information asymmetry is severe (Boisot and Child 1988) and corporate governance systems (such as internal corporate governance and external legal system) are quite weak in those economies (Allen et al. 2005). Therefore, listed firms are likely to rely more on vicarious learning to assess what behaviors are proper and how far transgressive behaviors are tolerated. We conducted a matched-sample study of 604 observations on Chinese

firms that are listed on the two stock exchanges in China (Shanghai and Shenzhen) between 2002 and 2008.

Our study attempts to make several contributions. First, we contribute to the organizational misconduct literature, especially the research stream of corporate financial fraud, by examining the deterrence effects of vicarious punishments, an aspect that has been largely ignored in previous studies, as extant research focused mainly on either the antecedents (e.g., Chen et al. 2005, 2006; O'Connor et al. 2006) or outcomes of the fraud firms (Fich and Shivdasani 2007). Our study also departs from past research by focusing on the observing firms of the fraud event, instead of on the fraud firms, because conceiving the preventive effects of punishment of the fraud firms as simply a matter of intimidation on the fraud firms will miss the more subtle and fundamental function of sanctions, which is sociopedagogical. To comprehend the full effect of fraud punishment, the analysis should not be limited to merely the direct punishment effects on the fraud firm (specific deterrence/punishment itself), but it has to assess the deterrent effects of indirect experience with punishments on the observing firms (general deterrence/punishment avoidance) (Stafford and Warr 1993). Thus, our study extends the literature of corporate financial fraud by highlighting this important punishment outcome—the *general* deterrence effects of vicarious punishment on the observing firms. Theoretically, we contribute to the literature by employing the social learning theory that offers a behavioral approach to understanding how vicarious punishments can act as deterrents for the observing firms and why the observing firms elicit different response behaviors due to differences in their self-evaluation processes. Although previous studies on organizational misconduct have also incorporated behavioral factors (e.g., Greve et al. 2010, Mishina et al. 2010), our study builds on and goes beyond them by elucidating the self-evaluation processes of the observing firms, which involve cognitive perceptions of the external environment and mechanisms by which the observing firms identify with the punishment targets. The behavioral aspect of fraud punishment illustrates the power of organizational theories in explaining the broader outcomes of corporate fraud, which may be beyond the boundary conditions of most economics-based perspectives.

Second, our study sheds light on the organizational learning literature by advocating deterrence as an important, but often ignored, type of learning (Kim and Miner 2007). More specifically, our study illuminates the inhibitive learning process comprising modeling, environmental, and social cues. The latter two cues, as moderators in our framework, specify various conditions that give rise to differential inhibitive learning outcomes of the observers. Our demonstrated differential learning impacts are important findings because the examination of the observers' self-regulatory processes is seldom contextualized and empirically tested in the social learning and

vicarious punishment literatures, and past studies tended to assume that general deterrence or inhibitive learning effects are homogeneous to the observers (Loughran et al. 2012). By incorporating the observers' sociocognitive evaluation of sanction avoidance (including vicarious-reinforcement effects of the environment cues and social identification effects of the social cues) into the theoretical model and empirically testing their moderating effects, our study considers both the observing and evaluating effects in the framework of vicarious punishment. This enrichment contributes to both the organizational learning and deterrence literatures.

Finally, our study has practical implications for researchers and policy makers in transition economies. The deterrence effects of vicarious punishments demonstrated in our study clearly indicate the effectiveness of nonlegal punishments in transition economies where a formal legal system is still underdeveloped. We suggest that vicarious punishment can be a cost-effective way to thwart corporate fraud and help those economies make better use of their existing institutions and governing mechanisms. Besides, the sociocognitive evaluation of the observers plays an important role in the legal socialization process that shapes firms' punishment avoidance decisions in the future (Loughran et al. 2012). In all, our study underscores the importance of the behavioral aspects and develops a new learning perspective in understanding the outcomes of vicarious punishment of corporate fraud.

Corporate Financial Fraud

Organizational Misconduct

According to Apostolou et al. (2000, p. 181), corporate financial fraud refers to "intentional misrepresentation of amounts or disclosures in the financial statements." By and large, corporate financial fraud can be viewed as a prominent type of organizational misconduct (Vaughan 1999). Organizational misconduct is defined as "behavior in or by an organization that a social-control agent judges to transgress a line separating right from wrong" (Greve et al. 2010, p. 56). A closely related literature is that on corporate illegality, which focuses on illegal acts that mainly benefit a firm by potentially increasing revenues or decreasing costs (McKendall and Wagner 1997, Mishina et al. 2010). Researchers have a strong interest in studying organizational misconduct or illegality because it serves as an effective context to examine various theories in relation to motivation, control, and status and because organizations can be powerful actors of misconducts that can cause serious harm to their stakeholders and the society as a whole (Greve et al. 2010). As a topic that carries important theoretical and practical value, organizational misconduct is thus a robust research area.

To date, the main focus of this literature has centered on understanding the causes of organizational misconduct and illegality through uncovering the factors that lead organizations to engage in those acts. Theoretically, this

stream of research is built on the premise that firms are more likely to engage in misconduct when they perceive that the potential benefits of doing so outweigh the potential costs (e.g., Braithwaite 1985, Coleman 1987). Drawing on this perspective, scholars have examined the effects of firm performance, executive compensation and culture, and social aspiration on organizational misconduct (e.g., McKendall and Wagner 1997, Mishina et al. 2010). Another line of research, though relatively less prevalent, is interested in the consequences of organizational misconduct, including the negative impacts on the focal organization and its owners, partners, customers, and other stakeholders (e.g., Frooman 1997, Rhee and Haunschild 2006), as well as on other organizations (e.g., Bizjak et al. 2009, Westphal and Zajac 2001). The negative consequences also spillover to innocent organizations through the effects of categorical delegitimation (Jonsson et al. 2009, Xu et al. 2006).

However, extant research on corporate illegality behaviors has largely focused on specific deterrence effects on the fraud firm but ignored the broader, general deterrence effects on the observing firms. As noted by Greve et al. (2010), although organizational misconduct and related topics have enjoyed a long tradition in organizational research because of their strong relevance to fundamental social science issues on compliance, punishment and its deterrence effects on the observers remain underexplored. To this end, our study intends to comprehend further the relationships among misconduct, punishment, and deterrence among organizations.

The context of our study focuses on corporate financial fraud in China. Corporate financial fraud, because of its prevalence and often widespread coverage in the media, represents an important type of organizational misconduct that has captured substantial scholarly attention in the organizational literature and allied fields such as accounting and finance. Furthermore, because China's financial market, albeit growing rapidly in recent years, is still under development, it offers a rich context to study this topic in greater depth. We provide an overview of our study context in the next subsection.

Corporate Financial Fraud in China

Corporate financial fraud includes occurrences in which the top management of a listed firm undertakes actions that materially mislead outside investors about the firm's financial information or misappropriate the firm's assets (Beasley 1996, O'Connor et al. 2006). The manipulation of outside investors' beliefs by better-informed insiders has a long history and apparently has existed since the onset of securities investment (Kumar and Langberg 2009). Research generally views corporate financial fraud primarily as a problem of corporate governance of the fraud firms (e.g., Chen et al. 2005, 2006), and as such, it suggests that fraud occurrences can be reduced through the improvement of internal and external governance structures.

Rapid economic transformation in transition economies often aggravates the problem of corporate financial fraud. China is no exception. Since the emergence of the stock markets in the early 1990s, the Chinese authorities and the public have confronted the problem of corporate financial fraud. Because of the lack of strong legal and regulative institutions, cheating and opportunistic behaviors are particularly prevalent in China (Boisot and Child 1988). The major regulator of the stock markets in China is the China Securities Regulatory Commission (CSRC). Similar to the Securities Exchange Commission in the United States, the CSRC carries out checks, investigations, and prosecutions of corporate financial fraud. Because enforcement actions by the CSRC have a significant negative impact on stock prices of fraudulent firms and sometimes even lead to chief executive officer (CEO) replacement, the CSRC has successfully established its credibility and is not a “toothless tiger” (Chen et al. 2005), and it represents the most important legal watchdog to guard against corporate financial fraud in China. The main tool employed by the CSRC to punish fraudulence committed by listed firms is administrative penalty. The CSRC’s administrative sanction committee takes charge to formulate rules on definitions of securities violations, hears the cases handed over by enforcement departments, chairs hearings, and drafts administrative penalty opinions. Several sets of rules underline the administration and provision of administrative penalty, including the “Solutions for Prohibiting Securities Fraud,” the “Shanghai Stock Exchange Listing Rules” and the “Shenzhen Stock Exchange Listing Rules.” Administrative penalties prescribed include internal and public criticisms, monetary fines, and confiscation of incomes from fraud, among others. Various penalties can be used separately or jointly.

As a transition economy undergoing significant changes in all facets of economic activities, the administrative penalty levied by the CSRC has important ramifications not only for the fraud firm itself but also for its peers that have the motivation to observe the incident. In a new, transitioning environment where proper behaviors may be inadequately prescribed and improperly understood (e.g., the stock markets in China), the experiences of one’s peers provide useful information as to what behaviors to adopt or to avoid. Several corporate financial frauds, as reported in the media, may serve as anecdotal evidence of how vicarious punishments work. The Yin Guang Xia event was one of the largest financial fraud scandals in China. In 2001, Yin Guang Xia was found to have committed several fraudulent business practices, including inflating profits and exaggerating assets. The firm, along with its auditing firm, Zhong Tian Qin, received the administrative penalty from the CSRC. This incident apparently gave a lesson not only to the fraud firm but also to its peers. For example, it was reported that, after the event, Chongqing Jiulong Electronic Power told its directors, supervisors, and managers to learn from the incident and conducted

comprehensive self-examinations to deter financial fraud. In 2004, the first punishment levied on a listed firm, Silver Tong Cheng Company, for its inflated profits in Gansu Province, exerted a strong deterrence effect on other listed firms. Many of them said that they would strictly obey the rules and regulations and fulfill their obligations of information disclosure.

Given that punishment of the fraud firm has indirect and more far-reaching impacts on the observing peers, our study adopts a behavioral perspective, premising on social learning theory, to focus on vicarious punishment effects by seeking to illuminate the social learning process involved. Specifically, we examine such effects resulting from the CSRC’s administrative penalties in China. We first introduce social learning theory and review the deterrence effects of punishments from the criminology and sociology literatures in the next section, and then we develop a conceptual model to outline the deterrence effects of vicarious punishment in corporate financial fraud.

Social Learning Theory and Deterrence Effects of Punishments

Social learning theory is regarded as a behavioral theory. In general, behavioral theory posits that behaviors are the results of interactions between situations and individuals, rather than emanating from one of them alone (Ginter and White 1982). Bandura (1968, 1977) develops the theory of social learning, which goes beyond the traditional direct experience model of learning. He suggests that, in addition to direct experience, learning can also be obtained through the processes of vicarious learning and symbolic functioning, by observing the behaviors and the related consequences of others. According to the author, “The capacity to learn by observation enables people to acquire large, integrated patterns of behavior without having to form them gradually by tedious trial and error” (Bandura 1977, p. 12). Besides, individuals have the discretion to exercise some control over their own behaviors through the function of cognition (Ginter and White 1982). Therefore, in social learning theory, vicarious learning, symbolic functioning, and self-regulatory processes are three main processes for acquiring new behaviors (Bandura 1977). Social learning theory revolves around the process of knowledge acquisition or learning directly correlated to the observation of others. The realization of the effects relies heavily on outcome expectancies. Effective observation and modeling teaches general rules and strategies for dealing with different situations (Bandura 1968). As a result of the observations, the observer can be affected and then change their behaviors accordingly.

Based on the work of Bandura (1968, 1977), Davis and Luthans (1980) have adopted the social learning perspective in the context of organizational behavior. The theory has further been used in management research

such as on employees' antisocial behavior (e.g., Robinson and O'Leary-Kelly 1998) and ethical leadership (e.g., Brown et al. 2005). The theory has also been adopted at the macro organizational level, in relation to strategic management (Ginter and White 1982), organizational response to the environment (Bedeian 1990), strategic groups (Peteraf and Shanley 1997), and organizational imitation (Kraatz 1998).

In essence, the primary focus of organizational research is on the imitative effect of social learning, which refers to the direct replication of an observed behavior. In addition to the imitative effect, deterrence, or the inhibitive effect, is also an important aspect of social learning but has received much less attention in the organizational literature (Kim and Miner 2007). In the criminology and sociology literatures, the arguments for how punishments deter deviant behaviors are sometimes subsumed under the principles of social learning theory (Akers et al. 1979). In general, the deterrence effect takes place when an observer sees someone punished for a behavior and then refrains from the replication of similar behaviors in the future (Bandura 1977). This is also known as the "general deterrence effect of punishment," or vicarious punishment, in which the punishment of an offender serves to deter others from committing similar crimes and receiving similar punishments (Stafford and Warr 1993). Such refrainment lies in the perceived sanction threats that arise from the observers' perceived punishment certainty, which is often found to be the most important aspect for inhibiting crime (Grogger 1991, Loughran et al. 2012). Besides, the preventive function of formal and informal institutional system relies heavily on the deterrence effect of exemplary punishment (Bandura 1977, Zimring and Hawkins 1973). As such, it is important to investigate the deterrence effect of social learning between organizations given our limited knowledge on this aspect (Bingham and Davis 2012).

Accordingly, our study adopts a social learning perspective, but focuses on the deterrence effect, in the analysis of corporate financial fraud by emphasizing the interactions among the three core components of social learning: the stimuli to the observing firm (i.e., punishment of its industry peers for corporate financial fraud as modeling cues), the observing firm's evaluations (i.e., evaluating the informational value of its industry peers' punishment by picking up environmental and social cues), and the observing firm's response behaviors (i.e., the likelihood of being deterred from committing corporate financial fraud). We elaborate the relationships among the three components below.

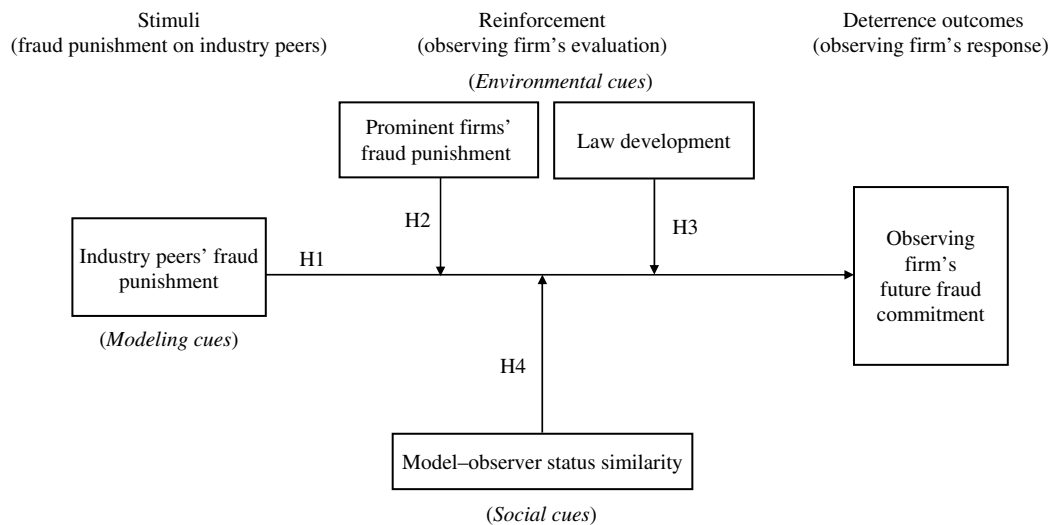
A Model of the Deterrence Effects of Vicarious Punishment on Corporate Financial Fraud

Vicarious punishment is based on the rationale that punishment deters future transgressions in observers by

heightening their perceived risks and expected outcomes (Zimring and Hawkins 1973). People are usually less likely to violate prohibitions when they witness violations by their peers being punished than if they see no negative consequences from them (Bandura 1977). For observers to display learned responses from vicarious punishments, an identification process is required in which the observers match or identify themselves with the punishment target so that they can then have contiguous association of the sensory event and anticipate the consequences to be applicable to them if they display the same behavior (Bandura 1969). In this way, the observing firm picks up cues from relevant punishment targets, and these cues are called modeling cues or stimuli in the social learning literature. In line with this logic, we focus on the vicarious punishments of corporate financial fraud of peers in an industry. We posit that an observing firm is less likely to commit financial fraud if the peers in its industry are caught and punished. In addition to the identification mechanism, social learning involves an evaluation process whereby observers interpret the vicarious-reinforcement effects by picking up additional cues in the external environment as well as evaluating their social similarity with the punishment target, which may influence the impact of modeling cues (Bandura 1969, 1971). These cues are referred to as environmental cues and social cues, respectively. Environmental cues signify the likely consequences for performing similar behaviors under different conditions, whereas social cues refer to the possibility of being caught and punished as determined by evaluating one's social similarity with the punishment targets. Accordingly, we further posit that different observing firms will display different learned response behaviors from observing the target firms because the observers' interpretations and evaluations of environmental and social cues will moderate the relationship between the modeling cues and their response behaviors. As such, our study incorporates both the observing and evaluating effects into the framework of vicarious punishment. Figure 1 presents the conceptual model of our study. We develop the hypotheses, in accordance with the model, in the following subsections.

Stimuli (Fraud Punishments of Industry Peers): Modeling Cues

From the social learning perspective, vicarious punishment is of informational value not only to the violator but to the observers as well (Bandura 1969, 1971; Schnake 1987). By observing the consequences for the punishment targets (models), observers will develop hypotheses about what actions or behaviors are permissible or punishable, and the likelihood that the observed outcomes of the models would be applied to themselves. In this regard, the punishment of the model serves as a modeling cue for the observers to learn about the types of behaviors that are likely to meet with disapproval, thus inhibiting

Figure 1 Vicarious Punishment Model

matching behaviors (Bandura 1971, O'Reilly and Weitz 1980). The modeling cues gathered from such observed punishment outcomes are particularly useful in regulating the behaviors of industry peers when ambiguity is high as to what actions or behaviors are approved or disapproved. Extant research (e.g., Peteraf and Shanley 1997) has suggested that social learning by organizations is primarily driven by the need to cope with uncertainty and limited experience. In transition economies like China, there are significant difficulties in information codification and diffusion (Boisot and Child 1988). What is more, given the short history of stock listing, the knowledge and understanding of laws and regulations of many listed firms are severely limited. In the absence of unambiguous guidelines and rules, social learning understandably plays a valuable role in regulating firm behaviors.

We focus on the modeling cues from industry peers. Industry peers oftentimes serve as a critical reference point for observing firms to make comparisons. Fiegenbaum et al. (1996) argued that managers usually choose some firms as their strategic reference points and observe their behaviors. Peteraf and Shanley (1997) also suggested that managers continually observe the actions of a localized group of firms when they scan the environment for useful knowledge and information. Specifically, firms in the same industry usually compare with one another because they are potential competitors, engage in business activities in similar areas, hire managers or employees from the same job markets, and sell similar products or services to the same customers. In addition, there are usually industrial constitutive rules describing the salient common attributes of organizations within the same industry, in turn constituting the industry-level identity of organizations (Glynn and Abzug 2002). Because of their common industrial identity, these firms are often described as members of the same population or even the same species (Baum and

Singh 1994). The constitutive rules provide organizations with a "frame of comparability" (Porac et al. 1995), and conformity to these rules categorizes an organization into referent fields (Glynn and Abzug 2002). Therefore, firms have strong motives and opportunities to observe, learn from, and adjust to the behaviors and consequences of their industry peers.

Based on the above literatures, we posit that when industry peers are punished for corporate financial fraud by regulatory authorities, the observing firms will become alert for several reasons. First, such punishments can easily capture the attention of other firms in the same industry. Given that industry peers often observe and imitate the behaviors and strategies of one another to cope with uncertainty (Guillen 2002), the fraud firms in the same industry likely are regarded as reference points by peer firms. Second, such punishment also serves as an information conduit conveying the message that corporate financial fraud is strictly prohibited and the relevant rules and regulations are actively enforced, and firms will be punished if they commit fraud. Third, punishment can produce fear in observers (Malouff et al. 2009). Seeing their reference points being punished and the negative market reactions accompanying the punishment (Chen et al. 2005), the observing firms can predict the consequences for themselves in similar situations, and therefore are likely to avoid committing fraud. To the extent that more firms in the same industry are caught and punished, the observing firms will witness the danger and even "visualize" the negative consequences more vividly and become more hesitant to commit fraudulent behaviors. This leads to our baseline hypothesis.

HYPOTHESIS 1 (H1). *The number of punishments of industry peers for corporate financial fraud is negatively related to the likelihood of fraud commitment of an observing firm in that industry.*

Observer's Evaluation: Environmental Cues

Modeling cues alone are not sufficient to fully account for observing firms' behaviors after witnessing the consequences faced by the model firms and, in our case, the punishment targets. Bandura (1971) highlighted that the deterrence effect of the same vicarious punishment is often differentially reinforced depending on the comparative judgment of its informational value, and such judgment is affected by environmental factors (factors external to the models and observers). Thus, it is important to examine how the observing firms evaluate environmental factors that may signify the likely consequences for performing similar corporate frauds. In this study, we focus on two types of environmental cues. First, a well-documented environmental cue is whether or not the regulator is determined to punish prominent targets, as such a cue is of greater utilitarian informational value for the observers (Bandura 1971). The observers are likely to evaluate the probability of receiving punishment if they commit fraudulent behaviors by assessing whether or not there is discriminatory enforcement of the punishment (Bandura 1969). In this regard, we examine the moderating effects of fraud punishments of prominent firms. Second, the effectiveness of vicarious punishment is highly dependent on whether the environment has explicit rules to govern firm response behaviors (Bandura 1969). Accordingly, we examine whether the effects of vicarious punishment will diminish when formal rules for governing firm behaviors in the broader institutional environment become more developed, which then weakens the need for social learning.

Fraud Punishments of Prominent Firms. A significant environmental cue that has been well documented is the regulator's determination and willingness to punish targets that are high in prestige, power, and competencies, which have greater utilitarian value for observers (Bandura 1971). We focus on the environmental cue given by fraud punishments of prominent firms on the stock exchange. A firm's prominence, according to Mishina et al. (2010, p. 706), "reflects the degree to which external audiences are aware of its existence, as well as the extent to which they view it as relevant and salient." This emphasis on awareness, relevance, and salience regarding firm prominence is in line with that of past studies (e.g., Ocasio 1997). Thus, the prominence of the model (fraud firm) becomes an important discriminative cue that signifies the possible consequences associated with the behaviors emulated by observers, thus representing greater utilitarian value for observers (Bandura 1969). Accordingly, we argue that the punishment of prominent firms is of important informational value to strengthen the deterrence effects of the modeling cue, that is, the punishment of industry peers, as such an act by the regulatory authorities provides an environmental cue to the observing firms that the regulatory and enforcement environment has become strict and serious in guarding against fraudulent behaviors.

Moreover, because of the high visibility of prominent firms (Rindova et al. 2005), punishments of these firms render the enforcement actions by regulatory authorities as salient environmental cues that attract heightened attention from all other firms. Such attention may arouse anxiety and fear in the observing firms and propel them to search for more information about the credibility of the regulatory enforcements. Also, the observed consequences for prominent violators provide a standard for judging whether the punishments of other violators (such as punished industry peers) are equitable or unfair, and through such comparison observers can get clearer information about the types of behaviors to be sanctioned. As indicated by previous studies (e.g., Bandura 1969, Deephouse 2000, Pfarrer et al. 2010), firm prominence may buffer the impact of negative incidents on firms. Prominent firms thus are less expected to be caught and punished for fraudulent behaviors. Hence, the consistently negative consequences on prominent firms caught for fraudulent behaviors clearly signal regulatory authorities' determination to punish violators as well as their impartialness and fairness in punishment enforcement. As such, the transmission of the standards and rules is facilitated (Bandura 1977), and the deterrence effects are in turn strengthened.

Being a national champion confers prominence. For example, Korea's Hyundai and Japan's Toyota are well-known examples of national champions in their respective countries. In China, this is especially the case. A national champion in China is usually a member of a business group (Nolan 2001, Yiu 2011). The central government of China selected about 100 business groups out of more than 2,500 business groups as the national champions (Nolan 2001). These national champions are mostly state owned and directly overseen by the State Council, China's highest decision-making body (i.e., central government as opposed to regional government) and thus are first-tier, central government firms in China. Also, top managerial positions in these firms are taken by high-ranking government bureaucrats. Although they are not necessarily the largest firms in China, these firms serve as exemplary cross-industry, cross-region "national" firms that carry the country's expectations of them to be world-class companies, in turn determining their position in the international economic order (Sutherland 2001). Regardless of the merits of such policy, national champions are widely regarded as prominent firms, as their successes, failures, and actions are bound to draw a great deal attention from other firms, the media, and the general public. For example, because national champions are founded by the state and provide products in industries that are central to national security and key economic sectors, the public pays particular attention to these firms and expects them to have timely and accurate information dissemination.¹ Therefore, when an observing firm sees that even firms as prominent as national champions are punished, it will be more certain that regulatory authorities are serious

about, as well as being impartial and fair in, the enforcement of the rules. Consequently, the effects of vicarious punishment become accentuated.

HYPOTHESIS 2 (H2). *The negative effect of industry peers' fraud punishment on the likelihood of an observing firm's fraud commitment is strengthened by the total number of fraud punishments of prominent firms in the stock exchange.*

Law Development. The relevance and effectiveness of vicarious punishments depends heavily on the ambiguity level of the legal environment (Bandura 1969). Under high levels of legal ambiguity, firms will find it challenging to obtain clear signals and adequate information about the consequences of various behaviors through direct learning of explicit rules and regulations in laws. In this case, indirect learning or observing the behaviors and consequences of models serves as a more effective and reliable means for the observing firms to obtain information with regard to which behaviors are permitted or prohibited in the specific institutional environment. In contrast, when the legal institutions are more developed such that firms can understand directly and easily from the explicit legal rules as well as their enforcement and implementation characteristics, vicarious punishment will be of less informational value. Firms will then learn via regulatory institutions, which have already summarized and transformed the experience from the fraud and punishment events to rules and regulations (Lampel et al. 2009). Indeed, it is understandable that firms would prefer the direct information contained in legal provisions, which is relatively stable, transparent, and long lasting, over the individualized information obtained through vicarious learning. This is in line with research on law and criminology that found perceived sanction threat is significantly influenced by certainty of punishment, which is part of a process of legal socialization about law that shapes subsequent perception of risk and, in turn, the decisions to offend or not (Grogger 1991, Loughran et al. 2012). Therefore, when the legal institutions, in terms of rules and regulations as well as their implementation and enforcement, are developed and mature, firms will have little doubt about transgressive behaviors being ignored and unpunished by the relevant authority. In other words, they do not have to rely as much on observational learning when it comes to certainty of punishment.

In this particular sense, formal legal rules and learning by observations can be viewed as substitutable with each other. When law development and implementation are less mature, observational learning is of critical informational value, because it may direct the observers' attention to relevant modeling cues from the punishment target that they would otherwise find difficult to interpret (McDavid 1962). Through such indirect means, they learn what behaviors are appropriate and allowed. When law development is more mature, the information from

observational learning, though certainly still relevant, becomes less crucial because the formal legal institutions have already mitigated the ambiguity and uncertainty of the legal environment. The firms may not need to pick up and interpret modeling cues as much because the information from the rules is now more clear-cut and easier to interpret. As such, we argue that the deterrence effects of vicarious punishment on other firms are relatively less relevant in this environment compared to that where the legal institutions are weaker. It is also in line with the institutional perspective that as formal institutions develop, reliance on informal institutions will be relatively weaker.

HYPOTHESIS 3 (H3). *The negative effect of industry peers' fraud punishment on the likelihood of an observing firm's fraud commitment is weakened when the level of law development is higher.*

Observer's Evaluation: Social Cues

Social cues refer to the possibility of being caught and punished as determined by evaluating one's similarity with the punishment targets. This can be explained by the mechanism of social identification. According to Ashforth and Mael (1989) and Tajfel and Turner (1985), identification with a group refers to a social actor's sense of belonging to this group. Through the process of social identification, the social actor deduces its value and significance from the association with social peers in the group who become the reference points in the social actor's decision making (Ashforth and Mael 1989, Fiegenbaum et al. 1996). Also, the social actor vicariously learns from the experiences of its reference points. Within an industry, a firm usually identifies with a certain social group that can distinguish them more saliently than the whole industry. The firm would regard such a group as its first-order reference point and give higher priority to the experiences of this group during the process of social learning (Dutton and Dukerich 1991, Peteraf and Shanley 1997).

Among the social identification means, such as age similarity and geography similarity, the most crucial one is status similarity (Chung et al. 2000), because status draws a sharp line and distinction between higher- and lower-status groups in the social categorization and cognitive differentiation of the actors (Ashforth and Mael 1989). Also, firms with similar status are expected to have similar values and tend to be more cohesive because the group boundary is less permeable, and thus they are more aware of and alert to one another's experiences (Podolny 1994). As such, we follow the literature and focus on status-based similarity in this study. The status of a firm refers to the firm's relative position among its peers or competitors within a broad social order (Peteraf and Shanley 1997), and such position is "socially constructed, and inter-subjectively agreed upon and accepted" (Washington and Zajac 2005, p. 284). We argue that status-based similarity is a powerful mechanism to strengthen

vicarious learning. First, because of the mechanism of social closure, a firm usually interacts with, and gets access to information and knowledge from, its industry peers of similar status (Burris 2004, Chung et al. 2000). Thus, firms have more chance to learn observationally from similar-status industry peers than from other peers. Second, the experiences of industry peers are more relevant for an observing firm that has a status similar to that of these industry peers. These firms directly compete with each other for similar customers, employees, and other resources. The process of competitive isomorphism (Hannan and Freeman 1977) drives them to have similar and compatible organizational practices (Chung et al. 2000), thus making the experiences of these firms more relevant and valuable for each other (Greve 2005). Third, when an observing firm has a status similar to that of the models that are punished by regulatory authorities, it is more vulnerable to the spillover effect of negative judgment by the external audiences, because audiences tend to generalize from the misconducts of the models to other firms with similar status (Jonsson et al. 2009, Zavyalova et al. 2012). Therefore, the observing firm will be particularly alert to learn from the mistakes made by their peer firms with similar status in the industry.

In regard to inhibitive learning from vicarious punishment, we propose that model–observer status similarity, that is, the similarity in status of the fraud firm and the observing firm, plays a crucial moderating role in the social learning process. As explained above, greater similarity between the model and the observer indicates that the experiences of the model are more relevant for the observer (Massini et al. 2005). Thus, the observing firms are more likely to choose these peers as their first-order reference points to gauge the probability of being caught when conducting fraudulent behaviors. When witnessing the negative consequences of the fraudulent behaviors of industry peers with similar status, the observing firms likely will perceive these punishment cases as especially vivid and relevant. They would easily imagine the same situations for themselves and may even perceive increased probabilities of being caught and punished if they commit similar frauds (Stafford and Warr 1993). Thus, the observing firms will pick up cues from their relevant social groups, and such cues will strengthen the deterrence effects of the fraud punishments of the peer group. In other words, the deterrence effect of a fraud punishment will vary among observing firms, with the effect being stronger for similar observing firms than for dissimilar observing firms. This implies that for a given observing firm, the deterrence effect of punishment for fraud committed by a similar model is stronger than that for fraud committed by a dissimilar model. Accordingly, we hypothesize the following.

HYPOTHESIS 4 (H4). *Similar-status industry peers' fraud punishment (model–observer similarity) is more negatively related to the likelihood of fraud commitment*

of an observing firm than dissimilar-status industry peers' fraud punishment (model–observer dissimilarity).

Methods

Empirical Setting and Sample

Our study uses China as the empirical setting. The experience of China, as the largest transition economy, has important implications for other countries at a transitional stage. Currently, there are more than 1,600 firms in the two stock exchanges (Shanghai and Shenzhen) of China. Since the CSRC was established in 1992, more than 300 laws and directives concerning the securities market have been issued. The Provisional Regulations Against Securities Fraud was approved in 1993. Subsequently, in 1998, the Securities Law was enacted, which expressly prohibited disclosure of false information, insider trading, and market manipulation. The law also stated that the CSRC was to be the ultimate regulator of the securities markets and the prime discipliner of the listed firms in China.

In line with previous corporate fraud studies (Chen et al. 2006, O'Connor et al. 2006), the unit of analysis of this study is fraud commitment. We examined all corporate financial fraud released and published by the CSRC from 2002 to 2008. The sample period was chosen because it was a period when China was actively moving away from a centrally planned regime and undergoing gradual institutional transition. Moreover, this sample period is after the promulgation and enforcement of several major legislations related to the corporate governance of Chinese listed firms, such as the Provisional Regulations Against Securities Fraud in 1993, the Company Law in 1994, the Securities Law in 1999, the Accounting Law in 2000, and the Rules of Internal Accounting Control (Basic Rules) in 2001. The enforcement actions against corporate financial fraud are recorded by the China Regulatory Enforcement Research Database of the China Stock Market and Accounting Research (CSMAR) database. The database includes each corporate financial fraud event that was officially released by the CSRC, Shanghai Stock Exchange, or Shenzhen Stock Exchange and published in the media designated by the CSRC. As such, the coverage of corporate financial fraud in the database is comprehensive. A total of 302 financial fraud cases by 211 firms from 2002 to 2008 were included in our sample.

Similar to previous corporate financial fraud studies (e.g., Arthaud-Day et al. 2006, Beasley 1996, Harris and Bromiley 2007), we adopted a matched sample research design that is considered more powerful and appropriate than a random sample design for studying events that have low occurrence rates in general (Arthaud-Day et al. 2006, O'Connor et al. 2006). For each fraud case, we matched a fraud firm with a nonfraud firm based on firm size in terms of within $\pm 30\%$ of the total assets in the year

prior to the year of the fraud occurrence as well as on industry type according to the industry classification of the CSRC. Firm size and industry are the two most widely used matching criteria in the corporate fraud studies (e.g., Daboub et al. 1995). Additionally, to minimize the likelihood of misclassifying a nonfraud firm in the sample, we reviewed each nonfraud firm from 2002 to 2008 to verify that there was no report of fraud throughout the period. After deleting cases with missing information for the variables used in this study, the final sample contains 604 observations (i.e., 302 matched pairs). We tested the equivalence of the fraud and nonfraud observations in terms of total number of employees, sales growth, current ratio, net profit, and stock listing exchange and found no statistically significant difference between the two groups of observations on any of these dimensions.

Dependent Variable

Following previous studies (e.g., Chen et al. 2005, 2006; Kang 2008), we used a binary variable to capture the *observing firm's fraud commitment*. We assigned a value of 1 for corporate financial fraud commitment cases that were officially announced during 2002–2008 and a value of 0 for all nonfraud cases.

Independent Variables

We lagged all our independent variables and control variables to rule out reverse causality (Kenny 1979). Therefore, the dependent variable was from 2002 to 2008 (t), whereas all the independent variables and control variables were from 2001 to 2007 ($t - 1$). In addition, we coded all the independent variables and control variables related to peer fraud punishment from the whole population—that is, all the listed firms in China.

Industry Peers' Fraud Punishment. In regard to the main independent variable in our study, we first classified all the listed firms into different industries according to the industry classification of the CSRC (a total of 22 industries). Because the total number of listed firms varies quite a lot from one industry to another, we scaled this variable by the size of the industry; that is, for each observing firm in our sample, we used the number of its listed industry peers' fraud punishment cases in the population divided by the total number of such peer firms as the measure for *industry peers' fraud punishment* (Mishina et al. 2010).

Prominent Firms' Fraud Punishment. Firm prominence “reflects the degree to which external audiences are aware of its existence, as well as the extent to which they view it as relevant and salient” (Mishina et al. 2010, p. 706). Following previous studies (e.g., Mishina et al. 2010, Rindova et al. 2005), the definition of a prominent firm is dichotomously classified by whether a firm belongs to the national champions or “central enterprises” in China. Being at the top of the government administrative

hierarchy, the central government has very strict criteria to select the national champions, because the government has a great deal of hope that these enterprises will be key drivers of the Chinese economy, and many of them are in industries that have strategic importance to national security and sectors with restrictions on entry. So whether a firm is a national champion or not serves as the most appropriate indicator of firm prominence in our study context, because these firms are the most renowned national companies in China, and their success, failure, and actions tend to draw the most attention from the public, the media, and other firms. *Prominent firms' fraud punishment* is measured by the number of fraud punishment cases committed by the national champions.² In line with the measure of industry peers' fraud punishment, this measure excludes the fraud punishment cases of the observing firm itself and is scaled by the total number of national champions in the stock market.

Law Development. Past studies (e.g., La Porta et al. 2000, Levine 2005) indicated that property rights protection is a key indicator of the level of law development, including how well the law is formulated and enforced. We adopted the index of property rights protection of firms developed by the National Economic Research Institute (Fan et al. 2009) to measure the levels of law development in China. The index reflects the development of the business legal framework in China, with higher scores indicating better protection of property rights. The index has been widely used in past studies, such as Firth et al. (2009) and Jiang (2010).

Model–Observer Similarity. Model–observer similarity is represented by two variables: *similar-status industry peers' fraud punishment* and *dissimilar-status industry peers' fraud punishment*. Following previous studies on firm status (e.g., Mitchell et al. 1993), we operationalized a firm's status in the industry in terms of market share. Specifically, we divided each firm in the population into two groups, higher status and lower status, according to the three-year averaged market share in the industry. A firm is considered to belong to the higher-status group if its market share is above or equal to the industry median and to belong to the lower-status group otherwise. *Similar-status industry peers' fraud punishment* is measured by the number of fraud punishment cases on the industry peers that belong to the same status group as the observing firm, whereas *dissimilar-status industry peers' fraud punishment* is measured by the number of fraud punishment cases on the industry peers that do not belong to the same status group as the observing firm.

Control Variables

Other Fraud Punishments. Past studies on social learning found that a focal firm may learn from the experiences of other social peers, such as peers from the same region (e.g., Kim and Miner 2007). To exclude such influence, we controlled for *same-region peers' fraud punishment*

and *same-age peers' fraud punishment*. *Same-region peers' fraud punishment* is measured by the number of fraud punishment cases on peers located in the same province as the observing firm, whereas *same-age peers' fraud punishment* is measured by the number of fraud punishment cases on peers that were established in the same year as the observing firm.

Punishment Severity. Because regulatory enforcement intensity and penalty size may also have an influence on the fraud commitment of the observing firm, we controlled for *punishment severity*, which is measured as the average value of the penalties levied on all the listed firms except the observing firm for corporate financial frauds in each year.

Corporate Governance. We controlled for the effects of key internal corporate governance mechanisms, including independent board of directors, CEO duality, ownership, and use of a Big Five auditor, which are commonly found in developed economies and increasingly being adopted in transition economies. Past studies found that firms are more likely to commit corporate financial fraud when the board is composed of fewer outside or independent directors (Beasley 1996) or has the CEO also serving as the chairman of the board (Kesner et al. 1986). Also, researchers found that equity-based incentives such as stock options can help reduce managers' propensity to commit corporate financial fraud (O'Connor et al. 2006). *The ratio of independent directors* is calculated as the number of independent directors divided by the total board size. *CEO duality* is a dummy variable that takes a value of 1 if the CEO and board chairman positions are held by the same person and 0 otherwise. *State ownership*, particularly salient in China, is controlled and calculated as the percentage of ownership shares held by the government. *Management ownership* is calculated as the percentage of the ownership shares held by managers. Finally, we controlled for the effects of a prestigious auditor (e.g., Becker et al. 1998, Chen et al. 2006). A value of 1 indicates that a *Big Five auditor* is employed, and a value of 0 indicates otherwise.

Organizational Control Variables. *Firm size* was found to be positively related to corporate financial fraud (Arthaud-Day et al. 2006). We measured *firm size* as the natural log of the total number of employees. We also controlled for *firm age*, because new firms may have a higher risk of corporate financial fraud because managers are under pressure to meet earnings expectations (Beasley 1996). It is measured as years since established. A firm is coded as 1 if it is a *prominent firm*, that is, a national champion, and 0 otherwise. *Debt–asset ratio* represents a firm's financial quality (Opler and Titman 1994) and hence could influence managers' incentives to commit financial fraud. It is measured as the ratio of long-term debt to total assets. Past studies found that a

firm's financial performance and growth may serve as “red flag” indicators of corporate financial fraud, because they may lead management to place undue emphasis on earnings and profitability and increase the likelihood of committing financial fraud (Beasley 1996). Therefore, we included a firm's financial performance in terms of *return on assets (ROA)* and firm growth in terms of *asset growth*.

In addition, past studies (e.g., Greve 2003, Mishina et al. 2010) also indicated that possible declines in a firm's future relative performance and the potential costs to the firm of not meeting social aspirations may motivate managers to conduct illegal behaviors. Social aspiration refers to the smallest outcome of a firm relative to the outcome of other firms that would be deemed as the boundary between success and failure (Greve 2003). In line with Mishina et al. (2010), *social aspiration* of a focal firm is calculated as the sum of the return on assets of its industry peers scaled by the total number of industry peers. A spline is used to isolate the effects of performance (i.e., ROA) above and below social aspirations, and two separate variables are generated. The two variables are coded so that larger positive values represent greater distance from aspirations for both measures. The calculations are as follows:

$$\begin{aligned} & \text{Performance_above_aspirations}_{it} \\ & = \text{ROA}_{it} - \text{aspirations}_{it} \quad \text{if } \text{ROA}_{it} > \text{aspirations}_{it}, \\ & = 0 \quad \text{if } \text{ROA}_{it} \leq \text{aspirations}_{it}; \quad (1) \end{aligned}$$

$$\begin{aligned} & \text{Performance_below_aspirations}_{it} \\ & = \text{aspirations}_{it} - \text{ROA}_{it} \quad \text{if } \text{ROA}_{it} < \text{aspirations}_{it}, \\ & = 0 \quad \text{if } \text{ROA}_{it} \geq \text{aspirations}_{it}. \quad (2) \end{aligned}$$

Environmental Control Variables. We controlled for industry effects by including five *industry dummies* using CSMAR's industry classification. Similarly, we also included *province dummies* to exclude the influence of regional variations in China (Chen et al. 2006, Liu 1983). In addition, *year dummies* are included in the analysis to tease out differences as a result of time.

Results

The means, standard deviations, and correlations of the variables used in the study are reported in Table 1. The correlations between industry peers' fraud punishment and similar-status and dissimilar-status industry peers' fraud punishment are quite high, because the latter two are subcategories of the former. To avoid collinearity, the two variables were included in separate models. We further checked the variance inflation factors (VIFs). The individual VIF ranges from 1.03 to 2.25, and the average VIF is 1.34. Given that all the VIFs are far below the commonly accepted value of 10 (Cohen et al. 2003), multicollinearity is unlikely to pose a threat to our study.

We tested our hypotheses using conditional logistic regression. Given the matched-sample design and binary

Table 1 Descriptive Statistics and Correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1 Industry peers' fraud punishment	0.05	0.00																						
2 Similar-status industry peers' fraud punishment	0.05	0.00	0.74																					
3 Dissimilar-status industry peers' fraud punishment	0.05	0.00	0.76	0.14																				
4 Prominent firms' fraud punishment	0.07	0.00	0.32	0.26	0.24																			
5 Law development	4.93	0.08	-0.04	-0.09	0.04	-0.04																		
6 Observing firm status	0.40	0.02	0.01	-0.33	0.34	-0.02	0.21																	
7 Same-region peers' fraud punishment	0.06	0.00	0.18	0.22	0.07	0.28	-0.30	-0.10																
8 Same-age peers' fraud punishment	0.05	0.00	0.32	0.32	0.16	0.18	-0.06	-0.10	0.10															
9 Punishment severity	9.39	0.21	0.37	0.29	0.28	0.42	-0.24	-0.02	0.38	0.12														
10 Independent director ratio	0.31	0.00	-0.06	-0.03	-0.07	-0.44	-0.10	-0.03	-0.05	-0.07	0.27													
11 CEO duality	0.14	0.01	-0.04	-0.06	0.00	-0.02	0.06	0.03	-0.06	-0.04	-0.04	0.05												
12 State ownership	0.27	0.01	-0.04	-0.07	0.00	-0.06	-0.08	0.11	0.02	-0.01	-0.10	-0.08	-0.09											
13 Management ownership	0.00	0.00	-0.04	0.00	-0.07	0.04	0.07	-0.09	-0.03	-0.05	0.06	0.07	0.16	-0.13										
14 Big Five auditor	0.02	0.01	-0.02	-0.07	0.04	-0.01	0.06	0.13	-0.04	-0.01	-0.05	-0.05	0.06	0.05	-0.02									
15 Firm size	7.01	0.05	-0.13	-0.23	0.04	0.08	-0.08	0.34	0.01	-0.07	0.03	-0.06	0.08	0.13	-0.02	0.15								
16 Firm age	10.76	0.14	0.08	0.08	0.03	-0.03	-0.01	-0.06	0.02	0.20	0.14	0.16	-0.01	-0.21	-0.15	-0.01	-0.16							
17 Prominent firm dummy	0.09	0.01	-0.02	-0.09	0.05	0.01	0.02	0.15	-0.08	-0.03	0.00	0.00	-0.08	0.18	-0.05	0.02	0.00	-0.13						
18 Debt-asset ratio	0.05	0.00	-0.06	-0.05	-0.04	-0.01	-0.05	0.00	0.03	0.03	-0.01	-0.02	-0.03	0.05	-0.08	0.03	0.00	0.00	-0.01					
19 ROA	-0.06	0.01	-0.03	-0.03	-0.02	0.01	0.04	0.01	-0.11	-0.02	-0.01	0.01	0.01	0.10	0.06	0.02	0.05	-0.19	0.07	-0.01				
20 Asset growth	0.08	0.02	-0.04	-0.05	-0.02	0.09	0.02	0.01	-0.02	-0.05	-0.04	0.02	0.01	-0.01	0.08	0.00	0.04	-0.15	0.08	0.04	0.33			
21 Performance above social aspiration	0.22	0.08	0.02	0.07	-0.04	-0.01	-0.03	-0.06	-0.01	0.01	0.05	0.04	0.04	-0.04	-0.01	-0.01	-0.11	0.04	-0.02	-0.03	0.03	-0.04		
22 Performance below social aspiration	0.21	0.04	-0.04	-0.02	-0.03	0.12	-0.03	-0.01	0.02	0.01	0.03	0.08	0.02	-0.03	0.17	-0.02	-0.08	0.07	0.06	-0.06	-0.32	-0.10	-0.02	

Note. Correlations less than or equal to ± 0.07 are significant at the 0.05 level; correlations less than or equal to ± 0.09 are significant at the 0.01 level (two-tailed).

dependent variable, the sample obeys a conditional distribution with the value of the dependent variable for each pair fixed (i.e., one 1 and one 0), and so conditional logistic regression is an appropriate tool for our analysis (Agresti 2002, Hosmer and Lemeshow 2000, O'Connor et al. 2006). Tables 2–5 display the study results. In Table 2, Model 1 is the baseline model that contains only control variables. Model 2 shows the overall effect of

industry peers' fraud punishment on observing firms' fraud occurrence (model cues). The coefficient of industry peers' fraud punishment is negative and statistically significant ($p < 0.01$), which provides strong support for Hypothesis 1.

In Models 3–5, we tested the moderating effects of the environmental cues. In Model 3, the coefficient of the interaction term between prominent firms' fraud punishment

Table 2 Conditional Logistic Regression Analysis: Effects of Modeling Cues and Environmental Cues

	Model 1	Model 2	Model 3	Model 4	Model 5
Independent variables					
<i>Industry peers' fraud punishment (industry punish)</i>		-22.51** (7.91)	-18.89** (7.83)	-24.41** (7.97)	-19.84** (8.02)
<i>Prominent firms' fraud punishment (prominent punish)</i>			-961.72† (626.13)		-991.16† (628.86)
<i>Law development</i>				-0.30 (0.22)	-0.37† (0.24)
<i>Industry punish × Prominent punish</i>			-545.31* (236.68)		-627.13** (249.87)
<i>Industry punish × Law development</i>				3.03* (1.68)	3.52* (1.76)
Control variables					
<i>Same-region peers' fraud punishment</i>	-6.06† (3.32)	-6.90* (3.48)	-6.55† (3.53)	-8.22* (3.80)	-8.21* (3.90)
<i>Same-age peers' fraud punishment</i>	-1.44 (1.34)	-1.00 (1.35)	-0.77 (1.38)	-0.93 (1.35)	-0.65 (1.39)
<i>Punishment severity</i>	-0.42 (0.84)	-0.46 (0.89)	0.60 (0.98)	-0.49 (0.91)	0.58 (0.98)
<i>Independent director ratio</i>	0.07 (1.96)	0.04 (1.99)	1.31 (2.20)	0.45 (2.00)	2.19 (2.29)
<i>CEO duality</i>	-0.14 (0.36)	-0.01 (0.38)	-0.14 (0.40)	-0.04 (0.39)	-0.20 (0.41)
<i>State ownership</i>	-0.83† (0.49)	-0.92† (0.50)	-1.23* (0.54)	-1.07* (0.52)	-1.43* (0.57)
<i>Management ownership</i>	26.10** (7.51)	23.32** (7.61)	24.75** (8.04)	22.88** (7.89)	24.64** (8.47)
<i>Big Five auditor</i>	-0.26 (0.79)	-0.58 (0.85)	-0.35 (0.87)	-0.53 (0.84)	-0.24 (0.85)
<i>Firm size</i>	0.05 (0.12)	0.09 (0.13)	0.09 (0.13)	0.10 (0.13)	0.09 (0.13)
<i>Firm age</i>	0.06 (0.04)	0.06 (0.04)	0.08† (0.05)	0.07 (0.04)	0.10* (0.05)
<i>Prominent firm dummy</i>	-0.40 (0.46)	-0.26 (0.46)	-0.76 (0.53)	-0.27 (0.47)	-0.83 (0.54)
<i>Debt-asset ratio</i>	-0.69 (1.70)	-1.16 (1.79)	-1.27 (1.89)	-1.02 (1.81)	-1.12 (1.92)
<i>ROA</i>	-11.06 (7.87)	-15.30† (9.17)	-16.40† (9.47)	-14.44 (9.09)	-15.75† (9.45)
<i>Asset growth</i>	0.28 (0.36)	0.28 (0.36)	0.58 (0.42)	0.35 (0.36)	0.73† (0.42)
<i>Performance above social aspiration</i>	-20.22† (10.76)	-14.93 (11.95)	-18.39 (12.46)	-16.34 (11.88)	-20.84† (12.37)
<i>Performance below social aspiration</i>	-10.17 (7.97)	-14.65 (9.26)	-15.82 (9.54)	-13.86 (9.18)	-15.23 (9.53)
Log likelihood	-121.92	-117.57	-109.57	-114.68	-105.80
Likelihood ratio χ^2 (d.f.)	174.82*** (51)	183.51*** (52)	199.53*** (54)	189.30*** (54)	207.06*** (56)
Pseudo- R^2	0.42	0.44	0.48	0.45	0.50

Notes. $N = 604$. Industry, province, and year dummies are included but not reported. All the independent variables and control variables are lagged ($t - 1$).

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (two-tailed for controls and one-tailed for hypothesized variables).

Table 3 Conditional Logistic Regression Analysis: Effects of Social Cues

	Model 1	Model 2	Model 3	Model 4
Independent variables				
<i>Similar-status industry peers' fraud punishment</i>		−14.24** (4.54)		−16.24*** (4.82)
<i>Dissimilar-status industry peers' fraud punishment</i>			0.93 (4.14)	−5.61 (4.83)
Control variables				
<i>Same-region peers' fraud punishment</i>	−6.06† (3.32)	−5.68 (3.50)	−5.97† (3.34)	−6.11† (3.54)
<i>Same-age peers' fraud punishment</i>	−1.44 (1.34)	−1.15 (1.43)	−1.46 (1.35)	−1.03 (1.40)
<i>Punishment severity</i>	−0.42 (0.84)	−0.34 (0.87)	−0.41 (0.84)	−0.39 (0.89)
<i>Independent director ratio</i>	0.07 (1.96)	0.73 (1.99)	0.11 (1.97)	0.53 (2.01)
<i>CEO duality</i>	−0.14 (0.36)	−0.02 (0.37)	−0.14 (0.36)	0.02 (0.38)
<i>State ownership</i>	−0.83† (0.49)	−1.00* (0.51)	−0.84† (0.49)	−1.01* (0.51)
<i>Management ownership</i>	26.10** (7.51)	26.03** (7.51)	26.42** (7.65)	24.51** (7.63)
<i>Big Five auditor</i>	−0.26 (0.79)	−0.63 (0.83)	−0.26 (0.79)	−0.68 (0.84)
<i>Firm size</i>	0.05 (0.12)	0.05 (0.13)	0.04 (0.12)	0.07 (0.13)
<i>Firm age</i>	0.06 (0.04)	0.06 (0.04)	0.06 (0.04)	0.06 (0.04)
<i>Prominent firm dummy</i>	−0.40 (0.46)	−0.44 (0.47)	−0.42 (0.47)	−0.37 (0.47)
<i>Debt–asset ratio</i>	−0.69 (1.70)	−0.79 (1.79)	−0.66 (1.71)	−1.02 (1.82)
<i>ROA</i>	−11.06 (7.87)	−16.11† (9.29)	−11.05 (7.85)	−16.97† (9.48)
<i>Asset growth</i>	0.28 (0.36)	0.23 (0.38)	0.27 (0.36)	0.24 (0.37)
<i>Performance above social aspiration</i>	−20.22† (10.76)	−16.48 (11.99)	−20.43 (10.80)	−14.78 (12.24)
<i>Performance below social aspiration</i>	−10.17 (7.97)	−15.53† (9.38)	−10.16 (7.96)	−16.44† (9.57)
Log likelihood	−121.92	−116.27	−121.90	−115.57
Likelihood ratio χ^2 (d.f.)	174.82*** (51)	186.13*** (52)	174.87*** (52)	187.52*** (53)
Pseudo- R^2	0.42	0.45	0.42	0.45

Notes. $N = 604$. Industry, province, and year dummies are included but not reported. All the independent variables and control variables are lagged ($t - 1$).

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (two-tailed for controls and one-tailed for hypothesized variables).

and industry peers' fraud punishment is negative and significant ($p < 0.05$). In Model 4, the coefficient of the interaction term between law development and industry peers' fraud punishment is positive and significant ($p < 0.05$). Such effects remain stable in Model 5, in which we entered both environmental cue variables together. Therefore, both Hypotheses 2 and 3 are supported. We plotted the moderating effects graphically. Figure 2, panels (a) and (b), demonstrates the moderating effects of prominent firms' punishment and law development. Figure 2, panel (a) shows that there is a negative relationship

between industry peers' fraud punishment and the likelihood of the observing firm's fraud commitment. However, the negative relationship becomes stronger at higher levels of prominent firms' fraud punishment compared with lower levels, indicating that prominent firms' fraud punishment can strengthen the deterrence effect of industry peers' fraud punishment on the observing firm's fraud commitment. As shown in Figure 2, panel (b), the negative slope of the relationship between industry peers' fraud punishment and the observing firm's fraud commitment becomes less steep as the level of law development

Table 4 Conditional Logistic Regression Analysis: Effects of Social Cues

	Model 1	Model 2	Model 3
Independent variables			
<i>Industry higher-status peers' fraud punishment (higher-status punish)</i>		−16.65* (8.07)	−4.13 (9.57)
<i>Industry lower-status peers' fraud punishment (lower-status punish)</i>		−9.38* (4.74)	−17.32** (5.99)
<i>Observing firm status</i>			−0.37 (0.41)
<i>Higher-status punish × Firm status</i>			−30.37** (10.97)
<i>Lower-status punish × Firm status</i>			15.17** (6.44)
Control variables			
<i>Same-region peers' fraud punishment</i>	−6.06† (3.32)	−6.74† (3.48)	−5.53 (3.56)
<i>Same-age peers' fraud punishment</i>	−1.44 (1.34)	−1.03 (1.35)	−1.12 (1.42)
<i>Punishment severity</i>	−0.42 (0.84)	−0.34 (0.89)	−0.11 (0.88)
<i>Independent director ratio</i>	0.07 (1.96)	0.07 (2.00)	0.11 (2.06)
<i>CEO duality</i>	−0.14 (0.36)	−0.02 (0.38)	−0.09 (0.39)
<i>State ownership</i>	−0.83† (0.49)	−0.95† (0.50)	−1.20* (0.53)
<i>Management ownership</i>	26.10** (7.51)	23.40** (7.59)	25.41** (7.82)
<i>Big Five auditor</i>	−0.26 (0.79)	−0.59 (0.84)	−0.80 (0.88)
<i>Firm size</i>	0.05 (0.12)	0.10 (0.13)	0.09 (0.13)
<i>Firm age</i>	0.06 (0.04)	0.07 (0.04)	0.07 (0.04)
<i>Prominent firm dummy</i>	−0.40 (0.46)	−0.27 (0.46)	−0.33 (0.47)
<i>Debt–asset ratio</i>	−0.69 (1.70)	−1.26 (1.79)	−1.24 (1.85)
<i>ROA</i>	−11.06 (7.87)	−14.65 (9.08)	−15.71 (9.62)
<i>Asset growth</i>	0.28 (0.36)	0.32 (0.37)	0.18 (0.39)
<i>Performance above social aspiration</i>	−20.22† (10.76)	−15.92 (11.96)	−15.46 (12.52)
<i>Performance below social aspiration</i>	−10.17 (7.97)	−14.02 (9.17)	−14.97 (9.68)
Log likelihood	−121.92	−117.31	−112.32
Likelihood ratio χ^2 (d.f.)	174.82*** (51)	184.03*** (53)	194.02*** (56)
Pseudo- R^2	0.42	0.44	0.46

Notes. $N = 604$. Industry, province, and year dummies are included but not reported. All the independent variables and control variables are lagged ($t - 1$).

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ (two-tailed for controls and one-tailed for hypothesized variables).

increases, indicating that law development weakens the deterrence effect of vicarious punishments.

The results of the model–observer status similarity test are presented in Table 3. Hypothesis 4 predicted that for a given observing firm, the deterrence effect of a similar-status model's fraud punishment is stronger than that of a dissimilar-status model's punishment. Table 3 shows

that the coefficient of *similar-status industry peers' fraud punishment* is significantly negative in Model 2 ($p < 0.01$) and Model 4 ($p < 0.001$), whereas the coefficient of *dissimilar-status industry peers' fraud punishment* is not significant in both Model 3 and Model 4. We compared the differences in the two regression coefficients in Model 4 by performing a t -test and found that they are significantly

Table 5 A Two-by-Two Matrix of the Effects of Model–Observer Similarity

Modeling firm	Observing firms	
	Higher-status	Lower-status
Higher-status	−34.50** (similar peers)	−4.13 (dissimilar peers)
Lower-status	−2.15** (dissimilar peers)	−17.32** (similar peers)

Note. The table shows regression coefficients calculated or extracted from Table 4.
 ** $p < 0.01$.

different ($t = 1.97, p < 0.05$). Therefore, Hypothesis 4 is supported.

To further illustrate our findings on model–observer similarity/dissimilarity, we divided both industry peers (model) and observing firms (observer) into higher- and lower-status groups based on their market positions in their respective industries, in terms of the three-year averaged market share in the industry (Mitchell et al. 1993). We used a median split to categorize the two groups.³ We created two interaction terms: *higher-status industry peers’ fraud punishment* \times *observing firm status* and *lower-status industry peers’ fraud punishment* \times *observing firm status*. Table 4 presents the results of the conditional logistic regression, whereas Table 5 is a two-by-two matrix that summarizes the regression coefficients of higher- and lower-status peers’ fraud punishments for higher- and lower-status observing firms.

Figure 2 Interaction Plots: Environmental Cues

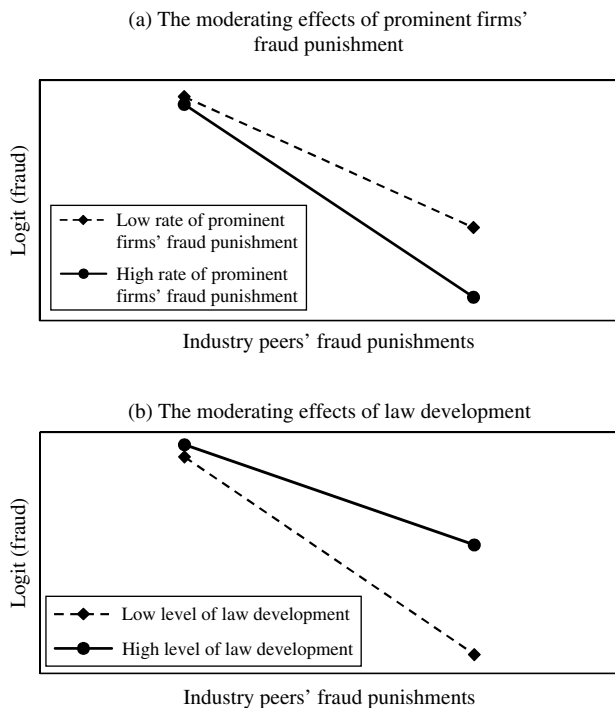
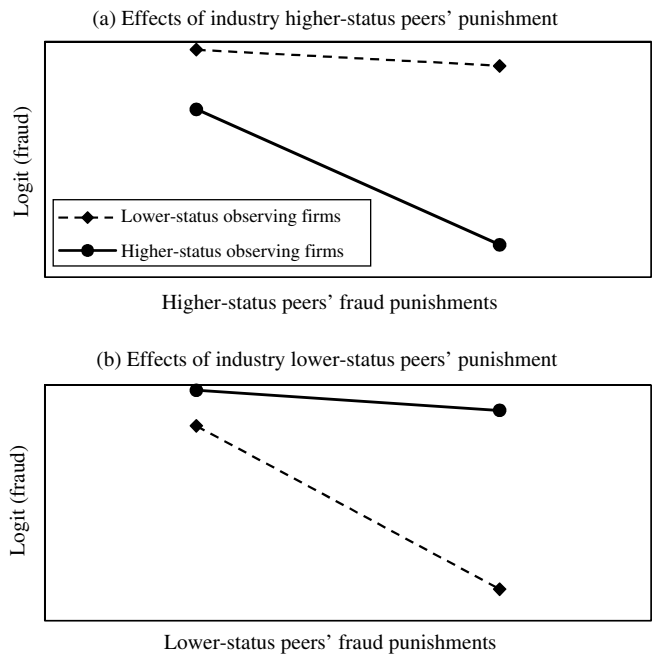


Figure 3 Interaction Plots: Social Cues



In Model 3 of Table 4, we find that higher-status observing firms are more likely to be deterred by punishments levied on the higher-status industry peers compared with lower-status observing firms. This is shown by the negative coefficient of the interaction term between higher-status peers’ punishment and the observing firm status dummy ($p < 0.01$). As for another matched group, lower-status peer fraud punishment and lower-status observing firm, we followed Baron and Kenny (1986) and Kenny (2011) to interpret the findings. As shown in Model 3, the coefficient of lower-status peers punishment is -17.32 ($p < 0.01$), indicating that their punishment, compared with higher-status peer punishment, strongly deters lower-status observing firms from committing fraud. In addition, we find that the coefficient of the interaction between lower-status peers’ punishment and observing firm status is 15.17 ($p < 0.01$), indicating that the effects of lower-status peers’ punishment are significantly different between the two observing groups, with the net effect of -2.15 ($= -17.32 + 15.17$) for the lower-status peers’ punishment on the higher-status observing group. So the effects of lower-status peers’ punishments are more negative on the lower-status than the higher-status observing firms. The regression coefficients of two matched pairs are also summarized in a two-by-two matrix (see Table 5). The values of the cells refer to the regression coefficients taken and calculated from Table 4. The matrix shows that the deterrence effect of the fraud punishment of a particular social group is stronger for the respective social peers (higher-status peers’ punishment: $-34.50, p < 0.01$ for higher-status observing firms versus -4.13 for lower-status observing firms; lower-status peers’ punishment: $-2.15, p < 0.01$ for higher-status observing

firms versus -17.32 , $p < 0.01$ for lower-status observing firms). We also find interesting results on dissimilar peers: lower-status peers' fraud punishment does have deterrence effects on the higher-status observing firms ($p < 0.01$; Model 3), whereas higher-status peers' fraud punishment does not have a significant effect on the lower-status observing firms. Taken together, these findings lend further support to our model-similarity hypothesis (Hypothesis 4).

We also plotted the effects of industry higher-status and lower-status peers' fraud punishment on the observing firm's fraud commitment in Figure 3 to show the moderating effects of model-observer status similarity.

Robustness Checks

To check the robustness of our findings, we conducted further tests. First, because learning effects could depreciate with time, we conducted the analysis by using a three-year time-diminishing measure of the industry peers' fraud punishment, that is, taking the weighted average of the fraud punishment cases in the previous three years (Darr et al. 1995, Ingram and Baum 1997):

$$\begin{aligned} & \text{Weighted_average_of_fraud_punishment} \\ & = \text{Fraud_punishment}_{t-1} + \text{Fraud_punishment}_{t-2}/2 \\ & \quad + \text{Fraud_punishment}_{t-3}/3, \end{aligned} \quad (3)$$

where t refers to the observation year of dependent variable. The results are similar to those in our main analyses.

Second, we conducted another robustness test by using firm ranking to measure firm status (Washington and Zajac 2005). We used the Top 500 Chinese Enterprises list published annually by the China Enterprise Confederation, a leading business press in China. The results remain similar to using market share as a measure of firm status.

Third, to control for the influence of the scale of punishment, we included *punishment severity* in terms of the mean penalty levied on the fraud firms in our main test. In the robustness test, we used various alternative measures of penalty size, including the sum of penalties levied on all fraud firms, the number of punishments with penalties over RMB 1 million, the number of punishments with penalties over RMB 0.5 million, and the number of punishments with penalties over RMB 0.1 million. The results are robust to that of the main test.

Fourth, as with other studies on corporate financial fraud, we could only examine the fraud punishment cases that were detected by the CSRC. Therefore, possible industry variations of regulatory enforcement intensity or time could confound the relationships in our main analysis. We performed several checks and tests to address this concern. For instance, we found that during 2001–2007 the average annual ratio of detected fraud cases per listed firm (i.e., number of fraud cases/total number of listed firms) in China (0.053) was much higher than that in the United States (0.008).⁴ This certainly reflects that in a

newly developed stock market such as China's, more firms engage in financial fraud. At the same time, it also shows that the CSRC is a relatively strong enforcer; otherwise, a lower number of fraud cases would have been detected in China than in the United States. Evidently, the CSRC is not a "slacker" in enforcement, which can help alleviate the concern that the regulators in China are not active.

Besides, we conducted correlational analyses of the detected fraud cases across industries and across time to see whether there are variations of enforcement intensity of the CSRC (the main regulatory enforcer in China's stock market). We found that the correlations between industry fraud punishments in the previous year and those in the current year and between the total number of fraud punishments in the stock exchange in the previous year and those in the current year are very low (approaching zero) and insignificant. This helps exclude the possibility of variations in regulatory enforcement during our sample period.

In addition, we conducted a Heckman two-step model to check for possible endogeneity (Heckman 1979). We tested whether the relationship between industry peers' fraud punishments and the likelihood of the observing firm's fraud commitment is due to differences in regulatory enforcement intensity across industries. We used two instrumental variables, *industry average debt-asset ratio* and *industry average use of foreign auditors*, to predict our key independent variable, *industry peers' fraud punishments*, in the first stage. The inverse Mills ratio is not significant, indicating that our findings are not endogenous to differences in regulatory enforcement across industries.

Discussion and Conclusion

The transition of an economic system from a centrally planned economy to a market economy provides firms with many opportunities to make a fortune and become successful quickly. However, the development of legal, market, and cultural institutions oftentimes is still in its infancy, which easily leads to rampant corporate financial fraud cases. Although the governments in transition economies have made efforts in establishing formal institutional systems, these systems are far from mature. Because of the poor flow of information (Boisot and Child 1988), firms and individuals have little knowledge about laws and regulations. Nevertheless, the regulation of listed firms by legal authorities is beginning gradually to get on the right track in some transition economies such as China, which cannot be easily explained using a pure economic-based approach. In this study, we employed insights from social learning theory to underpin our theoretical framework that explores whether and how fraud punishment levied on industry peers can deter other firms from committing such fraud. We postulated a theoretical framework on vicarious punishment that illustrates the identification mechanism

whereby an observing firm matches or identifies itself with the punished firm (modeling cues), as well as the evaluation process during which the observing firm interprets various vicarious-reinforcement effects by picking up cues in the external environment (environmental cues) and its status similarity with the modeling firms (social cues). These mechanisms and processes help illustrate the social learning/deterrence outcomes of vicarious punishment.

Vicarious punishment, or social learning in general, is particularly relevant in highly uncertain situations, and so we used China as the study context because China's stock market has just developed and is in constant flux. Our study shows that listed firms in China learn by observing the corporate behaviors and consequences of their industry peers. The announcement of corporate fraud by regulative authorities such as the CSRC would thrust fraud firms into the direct outcomes of decreasing market value and other negative consequences, as found in past studies (e.g., Chen et al. 2005), but our study clearly illustrates that through the mechanism of social learning among firms, vicarious punishment has indirect and even more far-reaching general deterrence effects on the observing peer firms. Our study shows that in transition economies where unambiguous formal institutions regulating firm behaviors are still lacking (Allen et al. 2005), punishment of modeling firms is of great informational value in that it conveys to the peer observing firms the information about what types of behaviors are permitted or prohibited, thus inhibiting future fraudulent behaviors (Bandura 1969, 1971; O'Reilly and Weitz 1980).

Additionally, our theoretical model delineates the social learning process by investigating why observing firms elicit different response behaviors as a result of differences in their self-evaluation and regulatory processes. First, we found that the impact of vicarious punishment is moderated by environmental cues. Our results show that the effect of modeling cues is positively reinforced when more prominent firms are punished. This coincides with past findings that firm prominence or visibility is an important factor to facilitate vicarious learning and interpopulation learning by arousing the awareness and alertness of potential learners and triggering their learning processes (Kim and Miner 2007). Because the punishment of prominent firms may be perceived as signaling the impartialness and fairness of punishment enforcement, our finding echoes the social learning literature that observers' perception of fairness can facilitate the learning process (Bandura 1977). Also, we received support for the substitutive role of law development. We showed that the deterrence effect of vicarious punishment is weaker when law development is more developed. However, we speculate that as the legal institutions continue to develop, future studies may examine whether the moderating effects of formal rules will persist and become stronger. Besides, our study focuses on prominent firm fraud punishments and law development to represent important

environmental cues. Future studies may examine specific roles of enforcers such as the stock exchange and the enforcing characteristics of regulators such as the CSRC or the government in deterring fraudulent behaviors.

Second, the impact of vicarious punishment is positively reinforced to the extent that the observing firms have similar status as the modeling firms (social cues). We have exhausted all possible scenarios of model–observer similarities/dissimilarities and found that there are significant differential effects of a given fraud punishment on higher- versus lower-status observing firms, as well as differential effects of higher- versus lower-status peers' fraud punishment on a given observing firm. Our evidence clearly shows that the deterrence effect of similar peer vicarious punishment is stronger than that of dissimilar peer vicarious punishment. This indicates the important role of social identification and relevance of social cues from first-order reference points in the vicarious learning process (Ashforth and Mael 1989, Tajfel and Turner 1985). In addition to the two matched groups, we also found interesting results for the two nonmatched groups. Specifically, our findings show that lower-status observing firms may not be deterred when witnessing their dissimilar peers punished for fraudulence, but higher-status observing firms would be deterred and refrain from fraud commitments when either their similar or dissimilar peers are punished. Future research can further explore reasons for these additional findings and refine the functions of firm status in vicarious learning. Taken together, the relevance of environmental and social cues in moderating the effects of vicarious punishment, as found in our study, helps shed light on the intricate processes of interpretation and evaluation involved in vicarious punishment and offers an answer on the differential response outcomes of observing firms toward the same modeling cues. Our findings offer a number of contributions to theory and practice.

Contributions to Theory and Practice

Our study extends the burgeoning literature on corporate financial fraud, or corporate misconduct in general, by examining the indirect, vicarious effects of punishment or general deterrence on other firms, whereas previous studies in this literature have largely focused on the direct effects of punishments of fraud firms or specific deterrence (Greve et al. 2010, Stafford and Warr 1993). Our study represents an early effort in examining the broader effects of vicarious punishment in corporate financial fraud research. More importantly, we have also sought to delineate the process of vicarious punishment in terms of stimuli (fraud punishment of industry peers), reinforcement (observing firm's evaluation), and deterrence outcomes (observing firm's response). Drawing on the insights from social learning theory, the theoretical framework suggested in our study therefore helps extend and enrich the literature on corporate financial fraud by directing the attention not only to the fraud firms but also

to their peers. This extended focus opens up a wider array of research opportunities on this increasingly important topic in the organization literature.

Our research also contributes to social learning theory by identifying the effects of different kinds of reference points during the process of social learning, when the observing firm interprets and evaluates the “cues” emanating from various sources. The observing firm usually takes into consideration modeling, environmental, and social cues associated with the corporate financial fraud incident, and then evaluates the possibility of itself being caught for committing fraud. Together, these cues represent the materials for the observing firm to learn and make sense of the incident, in turn affecting their subsequent behaviors. The findings vividly indicate the presence of an active, differential social learning process on the side of the observing firm.

Additionally, the findings of our study contribute to the organizational learning literature, especially the nascent learning from failure research (e.g., Kim and Miner 2007). First, we direct the research attention of this literature to the inhibitive effect, rather than the imitative effect, of vicarious learning. The inhibitive effect is much less emphasized in the organizational learning literature. Our study helps direct the attention to this equally important, but underexplored, area of research. Second, our study is in line with the learning from failure research that has begun to capture increasing attention in recent years. This research examines whether and how firms learn from organizational failure. Rather than examining how firms learn from their own failures, our study emphasizes how firms learn from other firms’ failures or, in our case, detected corporate financial fraud. This line of research (e.g., Baum and Dahlin 2007, Haunschild and Rhee 2004, Kim and Miner 2007) complements the learning from success research that has drawn significantly more attention thus far. Our study contributes to this research by advancing a theoretical framework that serves to illustrate the process of learning from others’ failures premised on the social learning perspective. Third, our study highlights the importance of the evaluation process of the observing firm in the whole social learning process. We demonstrate that the evaluation of differential reinforcements in the environment and comparison with social peers can accentuate or dampen the deterrence effects of vicarious learning. The delineation of such a cognitive evaluation process not only brings new insights to the learning literature but also echoes the research direction pointed out by Lampel et al. (2009) to analyze how firm similarity influences firms’ propensity to learn from the experiences of other firms at the population level and how population-level learning drives an individual firm’s learning. In all, our study demonstrates the significance and relevance of the use of organization theory, such as social learning theory, in providing a different line of reasoning for organizational phenomena that have been

predominantly viewed through economics-based lenses. We show that the interactions between organizational actors and environment, and the intricate cognitive evaluation process of organizational actors, can be more fully comprehended by organizational theory.

In addition to theoretical contributions, the findings of our study have practical implications for regulators, especially in transition economies. The findings clearly indicate the effectiveness of vicarious punishment in “regulating” proper firm behaviors, especially when the legal environment is still developing. In the transition process, although formal corporate governance is still lacking, an implication of our study is that “order” or “proper behaviors” may still be imposed through a myriad of informal, indirect means. Our study focuses on the learning side of the observing firms, but it has corollary implications for the “teaching” side of the regulators and policy makers in transition economies when they ponder how to make use of the prevailing institutions and governing mechanisms to strengthen corporate governance of listed firms. Our results also suggest that regulators need to be careful in the enforcement of the rules and regulations on corporate financial fraud, because the manner and targets of such enforcement will likely have important implications for other listed firms in the stock exchanges. For example, our finding that more prominent firms being caught will accentuate the effects of vicarious punishment has the implication that regulators will find vicarious punishment more effective to the extent that other firms perceive the fairness of enforcement. At the same time, the results may even have the practical implication that to thwart other firms from engaging in fraudulent behaviors, targeting the “big fish” may yield better outcomes.

Limitations and Implications for Future Research

Although our study represents an early effort in considering the process of vicarious punishment of corporate fraud, there are study limitations and fruitful avenues for future research that will shed more light on this important topic. First, in our study we were unable to know whether or not an observed firm has actually committed fraud until after it was detected by the regulatory authorities. Currently, this is a limitation common to corporate misconduct studies, as pointed out by Greve et al. (2010). As noted by the authors, developing a way to examine the behaviors of the firms and the regulatory agents jointly will be an ideal way to mitigate such a limitation. Despite our extended efforts to mitigate such concern by including regulatory enforcement variables (prominent firm punishments, level of law development, fraud severity) and conducting robustness and endogeneity tests, future studies can further assuage such limitation by modeling the enforcement characteristics of regulatory authorities to better control for the full extent of corporate financial fraud.

Our study, by focusing on the industry peers of fraud firms, has demonstrated the presence and importance of vicarious punishment in that peers of the fraud firms will be deterred from committing fraud through the process of social learning. Although we focused on industry peers in this study, an obvious peer group that has captured the most attention in the literature, it is possible that other types of peers are also subjects for examining the effects of vicarious punishment. For example, as indicated by the findings of Kim and Miner (2007) and the significant coefficient of *same-region peers' fraud punishment*, a control variable in our study, peers in the same geographical area may be another useful avenue for future research. In essence, the findings of our study testify our core proposition that peers are subject to the effects of vicarious punishment, but additional studies examining other peer groups will help increase the generalizability of our findings. Besides, observing firms' reactions to the fraud firms can be another interesting topic to investigate in the future. For example, does the order of reference groups change following the punishment? Future studies exploring such potential change, if any, in regard to the learning model would increase the precision of the social learning effect. In a related vein, because our data are only on China, one should be cautious when generalizing our findings to other countries. Future studies can test whether such effects in our study are unique to China or can be generalized to other countries.

Although we have lagged the dependent variable in our study to better consider the time for the learning process to take place, our archival data cannot permit us to examine the underlying learning processes directly, which is a similar limitation for most studies in organizational learning (Baum and Dahlin 2007). We present our theoretical arguments and real-life examples of social learning, as well as a set of moderating variables that indicate social learning is likely taking place. Nonetheless, our empirical models do not have the variables that directly measure learning mechanisms and processes. Future research using non-archival data, such as through questionnaires, interviews, or field studies, that can directly model the processes will be valuable for further understanding vicarious punishment as well as social learning in general.

Our results indicate that observing firms generally would learn from fraud firms' punishment cases and refrain from committing fraud as a consequence. Following past studies that showed that the effect of severity of punishment on crime deterrence is not significant, whereas certainty of punishment is found to be a strong deterrent of crime (Farrington et al. 1994, Grogger 1991), we focus on punishment certainty in our model; rather, we treated punishment severity as a control. However, future research may examine whether frequency and severity of punishment matter, as they may catch the attention of the observers in transition economies. Thus, how observing firms are made aware of vicarious punishment may be

another possibility to pursue in the future. Particularly in the context of transition economies, the government, stock exchange, and media may play a critical role in information dissemination. Future efforts can be made to examine how these different parties are involved in deterring corporate fraud by making observing firms aware of the consequences of corporate fraud. For instance, the priming effects of media serve not only to disseminate information but shape the views about what kinds of corporate behaviors are acceptable and legitimate (Zavyalova et al. 2012). Studies examining these possibilities likely will extend the vicarious punishment and social learning research.

Conclusion

Our study sheds light on the corporate financial fraud research by shifting extant focus from economics-based rationales to a social learning perspective. We highlight that vicarious punishment of industry peers has deterrence effects on observing firms. Furthermore, we find observing firms are more alert to certain types of target firms than others, thus suggesting that interpretation and self-evaluation by observing firms matter significantly in the social learning process. In all, our study offers an alternative perspective to examine corporate fraudulent behaviors by developing a new type of inhibitive vicarious learning that involves the interactions among the environment, the observing firms, and their subsequent behavioral responses in the fraud punishment and deterrence process.

Acknowledgments

This research was supported by the General Research Fund of the Hong Kong Research Grants Council [Projects CUHK458110 and CUHK456412] and the National Science Foundation of the Peoples' Republic of China [Project 71302100].

Endnotes

¹See <http://china.huanqiu.com/roll/2009-09/562927.html> (in Chinese), accessed September 1, 2012.

²The list of the national champions is taken from the National Statistics Bureau of China. The number of national champions varies across years but is generally about 100.

³The results of using a mean split and 25th percentile cutoff are similar.

⁴The two ratios were calculated based on data from several sources: for the number of fraud cases in China, data are from the CSMAR database; for the number of fraud cases in the United States, data are from Deloitte Forensic Center ([http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_dfc_ttf2ndedition_26112008\(3\).pdf](http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_dfc_ttf2ndedition_26112008(3).pdf)); for the number of listed firms, data are from the World Federation of Exchanges (<http://www.world-exchanges.org/statistics/time-series/number-listed-companies>), both accessed July 31, 2013.

References

Agresti A (2002) *Categorical Data Analysis*, 2nd ed. (John Wiley & Sons, Hoboken, NJ).

- Akers RL, Krohn MD, Lanza-Kaduce L, Radosevich M (1979) Social learning and deviant behavior: A specific test of a general theory. *Amer. Sociol. Rev.* 44:636–655.
- Allen F, Qian J, Qian M (2005) Law, finance, and economic growth in China. *J. Financial Econom.* 77:57–116.
- Apostolou B, Hassell JM, Webber SA (2000) Forensic export classification of management fraud risk factors. *J. Forensic Accounting* 1:181–192.
- Arthaud-Day ML, Certo ST, Dalton CM, Dalton DR (2006) A changing of the guard: Executive and director turnover following corporate financial restatements. *Acad. Management J.* 49:1119–1136.
- Ashforth B, Mael F (1989) Social identity theory and the organization. *Acad. Management Rev.* 14:20–39.
- Bandura A (1968) A social learning interpretation of psychological dysfunctions. London P, Rosenham D, eds. *Foundations of Abnormal Psychology* (Holt, Rinehart & Winston, New York), 293–344.
- Bandura A (1969) Social-learning theory of identificatory processes. Goslin DA, ed. *Handbook of Socialization Theory and Research* (Rand McNally, Chicago), 213–262.
- Bandura A (1971) *Psychological Modeling: Conflicting Theories* (Aldine-Atherton, Chicago).
- Bandura A (1977) *Social Learning Theory* (Prentice-Hall, Englewood Cliffs, NJ).
- Baron RM, Kenny DA (1986) The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *J. Personality Soc. Psych.* 51:1173–1182.
- Baum JAC, Dahlin KB (2007) Aspiration performance and railroads' rates of learning from train wrecks and crashes. *Organ. Sci.* 18:368–385.
- Baum JAC, Singh JP (1994) Organizational hierarchies and evolutionary processes: Some reflections on a theory of organizational evolution. Baum JAC, Singh JV, eds. *Evolutionary Dynamics of Organizations* (Oxford University Press, New York), 3–22.
- Beasley MS (1996) An empirical analysis of the relation between the board of director composition and financial statement fraud. *Accounting Rev.* 71:443–465.
- Becker CL, DeFond ML, Jiambalvo J, Subramanyam KR (1998) The effect of audit quality on earnings management. *Contemporary Accounting Res.* 15:1–24.
- Bedeian AG (1990) Choice and determinism: A comment. *Strategic Management J.* 11:571–573.
- Bingham CB, Davis JP (2012) Learning sequences: Their existence, effect and evolution. *Acad. Management J.* 55:611–641.
- Bizjak J, Lemmon M, Whitby R (2009) Option backdating and board interlocks. *Rev. Financial Stud.* 22:4821–4847.
- Boisot M, Child J (1988) The iron law of fiefs: Bureaucratic failure and the problem of governance in the Chinese economic reforms. *Admin. Sci. Quart.* 33:507–527.
- Braithwaite J (1985) *To Punish or Persuade: Enforcement of Coal Mine Safety* (State University of New York Press, Albany).
- Brown ME, Trevino LK, Harrison DA (2005) Ethical leadership: A social learning perspective for construct development and testing. *Organ. Behav. Human Decision Processes* 97:117–134.
- Burris V (2004) The academic caste system: Prestige hierarchies in Ph.D. exchange networks. *Amer. Sociol. Rev.* 69:239–264.
- Chen G, Firth M, Gao DN, Rui OM (2005) Is China's securities regulatory agency a toothless tiger? Evidence from enforcement actions. *J. Accounting Public Policy* 24:451–488.
- Chen G, Firth M, Gao DN, Rui OM (2006) Ownership structure, corporate governance, and fraud: Evidence from China. *J. Corporate Finance* 12:424–448.
- Chung SA, Singh H, Lee K (2000) Complementarity, status similarity and social capital as drivers of alliance formation. *Strategic Management J.* 21:1–22.
- Cohen J, Cohen P, West SG, Aiken L (2003) *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences*, 3rd ed. (Lawrence Erlbaum Associates, Mahwah, NJ).
- Coleman J (1987) Toward an integrated theory of white collar crime. *Amer. J. Sociol.* 93:406–439.
- Daboub AJ, Rasheed AMA, Priem RL, Gray DA (1995) Top management team characteristics and corporate illegal activity. *Acad. Management Rev.* 20:138–170.
- Darr ED, Argote L, Epple D (1995) The acquisition, transfer, and depreciation of knowledge in service organizations: Productivity in franchises. *Management Sci.* 41:1750–1762.
- Davis TRV, Luthans F (1980) A social learning approach to organizational behavior. *Acad. Management Rev.* 5:281–290.
- Deephouse DL (2000) Media reputation as a strategic resource: An integration of mass communication and resource-based theories. *J. Management* 26:1091–1112.
- Dutton JE, Dukerich JM (1991) Keeping an eye on the mirror: The role of image and identity in organizational adaptation. *Acad. Management J.* 34:517–554.
- Fan G, Wang X, Zhu H (2009) *Marketization Index of China: 2009 Report of the Relative Marketization of China's Provinces* (Economic Science Press, Beijing).
- Farrington DP, Langan PA, Wikstrom PO (1994) Changes in crime and punishment in America, England and Sweden between the 1980s and the 1990s. *Stud. Crime Prevention* 3:104–131.
- Fich EM, Shivdasani A (2007) Financial fraud, director reputation, and shareholder wealth. *J. Financial Econom.* 86:306–336.
- Fiegenbaum A, Hart S, Schendel D (1996) Strategic reference point theory. *Strategic Management J.* 17:219–235.
- Firth M, Lin C, Liu P, Wong SML (2009) Inside the black box: Bank credit allocation in China's private sector. *J. Banking Finance* 33:1144–1155.
- Frooman J (1997) Socially irresponsible and illegal behavior and shareholder wealth: A meta-analysis of event studies. *Bus. Soc.* 36:221–249.
- Ginter PM, White DD (1982) A social learning approach to strategic management: Toward a theoretical foundation. *Acad. Management Rev.* 7:253–261.
- Glynn MA, Abzug R (2002) Institutionalizing identity: Symbolic isomorphism and organizational names. *Acad. Management J.* 45:267–280.
- Greve HR (2003) A behavioral theory of R&D expenditures and innovations: Evidence from shipbuilding. *Acad. Management J.* 46:685–702.
- Greve HR (2005) Interorganizational learning and heterogeneous social structure. *Organ. Stud.* 26(7):1025–1047.
- Greve HR, Palmer D, Pozner JE (2010) Organizations gone wild: The causes, processes, and consequences of organizational misconduct. *Acad. Management Ann.* 4:53–107.
- Grogger J (1991) Certainty versus severity of punishment. *Econom. Inquiry* 29:297–309.
- Guillen MF (2002) Structural inertia, imitation, and foreign expansion: South Korean firms and business groups in China, 1987–95. *Acad. Management J.* 45:509–525.

- Hannan M, Freeman J (1977) The population ecology of organizations. *Amer. J. Sociol.* 83:929–984.
- Harris J, Bromiley P (2007) Incentives to cheat: The influence of executive compensation and firm performance on financial misrepresentation. *Organ. Sci.* 18:350–367.
- Haunschild PR, Rhee M (2004) The role of volition in organizational learning: The case of automotive product recalls. *Management Sci.* 50:1545–1560.
- Heckman JJ (1979) Sample selection bias as a specification error. *Econometrica* 47:153–161.
- Hosmer DW, Lemeshow S (2000) *Applied Logistic Regression*, 2nd ed. (John Wiley & Sons, New York).
- Ingram P, Baum JAC (1997) Opportunity and constraint: Organizations' learning from the operating and competitive experience of industries. *Strategic Management J.* 18:75–98.
- Jiang W (2010) Legal environment, financial development and long-term debt financing. *Securities Market Herald* 3:50–57.
- Jonsson S, Greve HR, Fujiwara-Greve T (2009) Undeserved loss: The spread of legitimacy loss to innocent organizations in response to reported corporate deviance. *Admin. Sci. Quart.* 54:195–228.
- Kang E (2008) Director interlocks and spillover effects of reputational penalties from financial reporting fraud. *Acad. Management J.* 51:537–555.
- Kenny DA (1979) *Correlation and Causality* (John Wiley & Sons, New York).
- Kenny DA (2011) Moderation. Accessed June 1, 2013, <http://davidakenny.net/cm/moderation.htm>.
- Kesner IF, Victor B, Lamont BT (1986) Board composition and the commission of illegal acts: An investigation of Fortune 500 companies. *Acad. Management J.* 29:789–799.
- Kim J-Y, Miner AS (2007) Vicarious learning from the failures and near-failures of others: Evidence from the U.S. commercial banking industry. *Acad. Management J.* 50:687–714.
- Kraatz MS (1998) Learning by association? Interorganizational networks and adaptation to environmental change. *Acad. Management J.* 41:621–643.
- Kumar P, Langberg N (2009) Corporate fraud and investment distortions in efficient capital markets. *RAND J. Econom.* 40:144–172.
- La Porta R, Lopez-de-Silanes F, Shleifer A, Vishny RW (2000) Investor protection and corporate governance. *J. Financial Econom.* 58:3–27.
- Lampel J, Shamsie J, Shapira Z (2009) Experiencing the improbable: Rare events and organizational learning. *Organ. Sci.* 20:835–845.
- Levine R (2005) Law, endowments and property rights. *J. Econom. Perspect.* 19:61–88.
- Liu APL (1983) The politics of corruption in the People's Republic of China. *Amer. Political Sci. Rev.* 77:602–623.
- Loughran TA, Piquero AR, Fagan J, Mulvey EP (2012) Differential deterrence: Studying heterogeneity and changes in perceptual deterrence among serious youthful offenders. *Crime Delinquency* 58:3–27.
- Malouff J, Thorsteinsson E, Schutte N, Rooke SE (2009) Effects of vicarious punishment: A meta-analysis. *J. General Psych.* 136:271–285.
- Massini S, Lewin AY, Greve HR (2005) Innovators and imitators: Organizational reference groups and adoption of organizational routines. *Res. Policy* 34:1550–1569.
- McDavid JW (1962) Effects of ambiguity of environmental cues upon learning to imitate. *J. Abnormal Soc. Psych.* 65:381–386.
- McKendall MA, Wagner JA III (1997) Motive, opportunity, choice, and corporate illegality. *Organ. Sci.* 8:624–647.
- Mishina Y, Dykes BJ, Block ES, Pollock TG (2010) Why “good” firms do bad things: The effects of high aspirations, high expectations, and prominence on the incidence of corporate illegality. *Acad. Management J.* 53:701–722.
- Mitchell W, Shaver JM, Yeung B (1993) Performance following changes of international presence in domestic and transition industries. *J. Internat. Bus. Stud.* 24:647–669.
- Nolan P (2001) *China and the Global Economy: National Champions, Industrial Policy, and the Big Business Revolution* (Palgrave, Basingstoke, UK).
- Ocasio W (1997) Towards an attention-based view of the firm. *Strategic Management J.* 18:187–206.
- O'Connor JP Jr, Priem RL, Coombs JE, Gilley KM (2006) Do CEO stock options prevent or promote fraudulent financial reporting? *Acad. Management J.* 49:483–500.
- Opler TC, Titman S (1994) Financial distress and corporate performance. *J. Finance* 49(3):1015–1040.
- O'Reilly CA, Weitz BA (1980) Managing marginal employees: The use of warnings and dismissals. *Admin. Sci. Quart.* 25:467–484.
- Peteraf M, Shanley M (1997) Getting to know you: A theory of strategic group identity. *Strategic Management J.* 18:165–186.
- Pfarrer MD, Pollock TG, Rindova VP (2010) A tale of two assets: The effects of firm reputation and celebrity on earnings surprises and investors' reactions. *Acad. Management J.* 53:1131–1152.
- Podolny JM (1994) Market uncertainty and the social character of economic exchange. *Admin. Sci. Quart.* 39:458–483.
- Porac J, Thomas H, Wilson F, Paton D, Kanfer A (1995) Rivalry and the industry model of Scottish knitwear producers. *Admin. Sci. Quart.* 40:203–227.
- Rhee M, Haunschild PR (2006) The liability of a good reputation: A study of product recalls in the U.S. automobile industry. *Organ. Sci.* 17:101–117.
- Rindova VP, Williamson IO, Petkova AP, Sever JM (2005) Being good or being known: An empirical examination of the dimensions, antecedents, and consequences of organizational reputation. *Acad. Management J.* 48:1033–1049.
- Robinson SL, O'Leary-Kelly AM (1998) Monkey see, monkey do: The influence of work groups on the antisocial behavior of employees. *Acad. Management J.* 41:658–672.
- Schnake ME (1987) Vicarious punishment in a work setting: A failure to replicate. *Psych. Reports* 61:379–386.
- Stafford MC, Warr M (1993) A reconceptualization of general and specific deterrence. *J. Res. Crime Delinquency* 30:123–135.
- Sutherland D (2001) Policies to build national champions: China's “national team” of enterprise groups. Nolan P, ed. *China and the Global Business Revolution* (Palgrave Macmillan, New York), 67–139.
- Tajfel H, Turner JC (1985) The social identity theory of intergroup behavior. Worchel S, Austin WG, eds. *Psychology of Intergroup Relations*, Vol. 2 (Nelson-Hall, Chicago), 7–24.
- Trevino LK (1992) The social effects of punishment in organizations: A justice perspective. *Acad. Management Rev.* 17:647–676.
- Vaughan D (1999) The dark side of organizations: Mistake, misconduct and disaster. *Annual Rev. Sociol.* 25:271–305.
- Washington M, Zajac EJ (2005) Status evolution and competition: Theory and evidence. *Acad. Management J.* 48:282–296.

- Westphal JD, Zajac EJ (2001) Explaining institutional decoupling: The case of stock repurchase programs. *Admin. Sci. Quart.* 46:202–228.
- Xu T, Najand M, Ziegenfuss D (2006) Intra-industry effects of earnings restatements due to accounting irregularities. *J. Bus. Finance, Accounting* 33:696–714.
- Yiu DW (2011) Multinational advantages of Chinese business groups: A theoretical exploration. *Management Organ. Rev.* 7:249–277
- Zahra SA, Priem RL, Rasheed AA (2005) The antecedents and consequences of top management fraud. *J. Management* 31:803–828.
- Zavyalova A, Praffer MD, Reger RK, Shapiro DL (2012) Managing the message: The effects of firm actions and industry spillovers on media coverage following wrongdoing. *Acad. Management J.* 55:1079–1101.
- Zimring F, Hawkins G (1973) *Deterrence: The Legal Threat in Crime Control* (University of Chicago Press, Chicago).

Daphne W. Yiu is an associate professor in the Department of Management of the Faculty of Business Administration at the Chinese University of Hong Kong. She received her Ph.D. from University of Oklahoma. Her research centers on corporate and international strategy and corporate governance in the context of Asian and emerging economies.

Yuehua Xu is an assistant professor of management at Lingnan College, Sun Yat-Sen University. She received her Ph.D. from the Chinese University of Hong Kong. Her research interests include organizational misconduct and corporate turnaround.

William P. Wan is a professor in the Department of Management at City University of Hong Kong. He received his Ph.D. from Texas A&M University. His research focuses on corporate and international strategy, corporate governance, international business, as well as strategic and international entrepreneurship.