Intra-Industry Effects of Corporate Scandal Announcements:

Evidence from China

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Abstract:

This paper investigates the variation in contagion effect of corporate scandals on peers firms with different corporate governance quality. We find that better corporate governance reduces investors' uncertainty about a firm's fundamental value and alleviates the contagion effect of scandals. Specifically, the empirical results show that external governance, ownership structure and external auditors play important roles to reduce the contagion effect of corporate fraud announcement while board characteristics do not. We also find that external governance and ownership take stronger effect in reducing the contagion effect of non-financial fraud, while quality of auditors plays more pronounced role to mitigate contagion effect in financial fraud. Opposite to the prior studies, we find contagion effect in highly competitive industries and competitive effect in industries with low competition.

Keyword: corporate scandals; contagion effect; corporate governance; industry competition

1. Introduction

Corporate scandals[1] are classic manifestation of agency problem and the reflection of underlying weak corporate governance. In the corporate governance literature, soundness of corporate governance guarantee better performance and operation efficiency by preventing the managers of the firm from reaping private benefits at the expense of the firm and its shareholders. Without effective internal and external governance mechanism, managers receive weak monitoring and constraints, which easily results in illegitimate behaviors. As discussed in prior literature, weak corporate governance is associated with types of corporate frauds (Beasley, 1996; Dechow et al, 1996; Alexander and Cohen, 1998; Agrawal and Chadha, 2005; Chen et al., 2006; Farber, 2004). Thus, on the surface, disclosure of corporate scandals contains information on the nature of the scandals, and further, on the failure of corporate governance that predict the dark future of the event firms.

Corporate scandals could spoil firms' reputation (Karpoff and Lott, 1993), interrupt regular operations and influence the changes of key personnel (Agrawal et al., 2005), or even threaten the survival of related firms, such as Enron and WorldCom. Although scandals post high risks on firms, investors and the whole market, surprisingly, relatively little is known about their externality. Public attention on corporate scandals has increased after the occurrence of financial scandals of Enron, and WorldCom. Not only the matching industries but also the whole market has felt

[1] In this paper, corporate fraud and scandal are interchangeable.

their contagion effect (Gleckman 2001). However, few academic studies examine externality of corporate scandals in a large sample with few exceptions, e.g. Malone and Hedge (2004).

In this study, we investigate the variation in intra-industry information spillover of corporate scandals on peer firms and explain the variation from the perspective of firm-level investor protection while most prior papers study contagion or competition effect from the industry level. Prior studies have documented that the same external auditor (Gleason, Jenkins, and Johnson 2008) and the same outside directors (Fich and Shivdasani 2007) exacerbate contagion effect in the US market. Our analysis focuses on corporate governance mechanisms in China, an emerging market with weak investor protection.

Selecting China as the study venue is meaningful in many aspects compared to previous studies alike. The first is that enforcement of law in China is still weak, and firms tend to seek rent or adopt illegal measures in operations, inducing high frequency of scandals not only in financial reporting but also in other operation activities. It provides an opportunity to examine corporate scandals of other forms. The second is that China exemplifies many intriguing characteristics of emerging markets, which differs from developed markets, such as concentrated state ownership and government intervention. Governance mechanisms associated with the unique institutions influence firms' and investors' behavior. The last but not least, China stock market is a typical emerging one with serious information asymmetry problem. Many

factors, like lack of relevant laws and regulations, poor knowledge of managers, deliberate information cover-up, and weak law enforcement, result in the fact that information is seriously asymmetric for market participants. The information asymmetry has doomed the possible contagion effect in the market, because outside investors may rely on information about one firm as indirect signals for the valuation of other firms, especially for firms with common fundamental features, like firms in the same industry.

The purpose of this paper is to investigate the variant contagion effects of scandal announcements from corporate governance perspectives. We measure corporate governance from four perspectives. First, we examine the external corporate governance mechanisms measured by regional institution development (i.e., marketization index, legal environment, openness, and region economic development). Our empirical findings show that contagion effect is more pronounced when both peer firms and scandals firms are located in regions with weaker institution environment, especially for non-financial fraud events. Second, we examine ownership structure, an important institutional factors in China (Cull and Xu 2005; Gul, Kim and Qiu 2009; Calomiris, Fisman and Wang 2010). We examine two aspects of ownership structure: one is whether both the largest controlling shareholder of scandal firms and peer firms are local or central government and the other one is the non-controlling blockholders. Our evidence shows that contagion effect is more severe when scandal firms and peer firms are both state owned firms.

Then we investigate if board characteristics are associated with contagion effect of corporate scandals. The monitoring role of the board on managers has been documented by prior studies (Fama and Jensen, 1983; Weisbach, 1988; Lipton and Lorsch, 1992; Yermack, 1996). Our results show that traditional measures of board characteristics don't affect the contagion effect of corporate fraud, casting doubt on the monitoring role of board in China.

Finally we examine if high quality of peer firms' external auditors is associated with lower contagion effect. External auditors are found to play an important role in reducing information asymmetries in China (Gul, Kim and Qiu 2009). If peer firms have an external auditor with high quality, investors will trust the firm-specific information proved by the auditor and thus alleviate spillovers of bad news from corporate scandals. We find that appointment of Top-10 auditors (based on total assets audited in China stock market) in peer firms is associated with lower contagion effect of fraud.

In addition, we also examine one industry feature, the level of industry competition. The prior studies (Lang and Stulz 1992; Erwin and Miller 1998;) document that the level of industry competition is an important factor that affect intra-industry information spillovers. Opposite to the previous findings, we find that as the industry becomes more competitive, the contagion effect becomes more evident; as the industry becomes less competitive, the competitive effect counterfeits the contagion effect. Our evidence suggests that in the weak regulatory environment in

China, high industry competition could force firms to follow sub-rules of the industry and thus exaggerate negative contagion effect of scandals.

Our study provides new evidence on the externality effect of corporate fraud announcement and the determinants of externality variation. The lack of attention on the external effect of scandals may be partly attributed to the fact that there has been abundant empirical evidence on contagion effect of many kinds of corporate events, such as bankruptcy (Lang and Stulz, 1992) , management buyout (Slovin, Sushka, and Bendeck, 1991), earnings releases (Foster, 1981), equity offering (Szewczyk, 1992; Polonchek and Miller, 1999), dividend announcements (Firth, 1996), and accounting restatements (Gleason, Jenkins, and Johnson, 2008). On the other hand, our study demonstrates that scandals are not necessarily idiosyncratic, and can convey common information on corporate governance in the industry. This situation is evident in China, where institutional environment is weak and information asymmetry is serious. That is, contagion effect of corporate scandals conditions on firm characteristics, industry competition, and also country institutional background.

Our study is also related to studies (Morck, Yeung and Yu 2000; Gul, Kim and Qiu 2009) that investigate stock price synchronicity in China as well as in other emerging markets. Morck, Yeung and Yu (2000) find that high synchronicity is correlated with weak protection for investor property rights. Besides investor property rights protection, Jin and Meyer (2006) show that in a country with weaker institution environment, negative shock of one firm could more easily spill over to other firms

and translated into increased industry risk and market risk. Gul, Kim and Qiu (2009) show that firm-level investor protection inversely associated with synchronicity. Our paper provides further evidence for their findings through the external impact of corporate fraud.

The remainder of the paper is organized as follows. Section 2 develops testable implications about the external effects of corporate scandals. Section 3 describes sample selection procedures and provides descriptive information about the scandal events. Our empirical results are presented in Section 4 and Section 5 contains concluding remarks.

2. Hypothesis development

An intra-industry information transfer occurs when news releases by one firm affect the stock prices of other firms in the same industry[2]. Specifically, when the shock is disclosed, if other firms experience market reaction of the same direction as the event firms, the phenomenon is defined as contagion effect. On the other hand, if other firms experience opposite reaction, it is called competitive effect.

Contagion effect hypothesis

Prior research keep silent about whether corporate frauds convey information useful to outside investors in pricing the stock of other similar firms. One possibility

[2] News information transferred has been widely documented in the literature. Prior studies based on the US or other developed markets focus on announcements of significant events like firm bankruptcy (Lang et al. 1992), emerging from bankruptcy, dividend (Firth 1996), dividend omission, stock splits (Caton, Goh, and Kohers 2003), earnging release (Foster 1981) earnings restatement(Gleason, Jenkins, and Johnson, 2008), corrective disclosure (Akhigbe, Madura,and Newman, 2006), mergers and acquisitions (Akhidgbe,Borde, and Whyte 2000), stock repurchase（Otchere and Ross 2002, Massa, Rehman, and Vermaelen, 2007）, bank loan ratings（Merli and Schatt 2003）, bank failures（Aharony and Swary 1983,Allen and Gale 2000）, and so on.

is that scandals like financial frauds or internal irregularities are idiosyncratic and cannot represent the information of the whole industry. For instance, Aharony and Swary (1983) assume that revelations about frauds by risky investments are uncorrelated across banks. However, the existence of corporate frauds is partially because managers/insiders have incentives to manipulate information and mislead outsider investors for their private benefit. For example, one of those incentives is to move up earnings because of the whole industry going downturn. In order to be qualified for listing in China, firm managers are highly motivated to window dress the financial reports because the Company Law stipulates that a firm qualified for public offerings must at least earn profits in the previous three years. Particularly under the Quota System[3], the competition for the quota of listing becomes tense, and firms are more likely to commit financial frauds. Meanwhile, internal and external governance mechanisms do not discipline managers/insiders effectively. Therefore, we argue that corporate frauds function as a catalyst for altering investors' perceptions about the effectiveness of corporate governance implemented by other firms in the industry and further real economic performances issued by other firms in the industry.

Szewczyk (1992) point out that information released by a firm causes the market to revise the value of both announcing and non-announcing firms in the same

[3] Before March 17, 2001, Quota System was used to select qualified firms for public offerings and listing. According to this method, the regulator planned the total quota for the number of IPO firms, and the quota were assigned to the local governments (provincial-level) or the ministries governing certain industries. Which firm would be chosen then was largely decided by the provincial governments or ministries without transparent monitoring system. The great discretion turned out to create rents for the firms and the governments. To get the quota, firms tried to disguise their poor previous performance and corrupt officials. The notorious corruption or financial fraud cases like Chengdu Hongguang Industrial (600083), Macat Optics & Electronics (000150), Hainan Minyuan Modern Agricultural Development (000508), Daqing Lianyi Petro-Chemical (600065) and Huangshi Kangsai Section (600745) all occurred under the Quota System.

direction because of homogeneity of firms within an industry. Specifically, firms in the same industry tend to have the homogeneous management practices as well as the similar corporate governance because they share the same market, produce similar products, and easily imitate each other in management. This case is more salient in China. Most of the modern firms in China are transformed from the SOEs as the legacy of planned economy. Under planned economy scheme，all the production, sales and personnel depended on the government and the firms were prohibited to make their own decisions. Thus firms in the same industry were inclined to form uniform style of running or governance. Though today as the government decentralizes the decision rights, firms gain more and more autonomy and independence, the inclination of homogeneity still persists in a way and most of the state controlled firms in the same industry share the common fundamentals.

Because of the similar governance and management practices among firms in the same industry, rent seeking behaviors or other irregularities of the firms also tend to be similar. Financial scandals are not necessarily firm specific and tend to have externalities on other firms. If one reviews a firm as a portfolio of investment whose true value is not known to outside investors, a fraud announcing reveals information to outsiders about that value as well as the rivals' value due to their correlated management and corporate governance behavior. In this perspective, under the assumption of information asymmetry, when a scandal is disclosed, the drop of stock price of the related firm not only signalizes its corporate governance, but also suggests

that the problem should be common for the whole industry. Put it simply, the scandal firm is just a typical example of whole industry in failure of corporate governance; the reasons of scandals should be more than idiosyncratic. Consequently, our first hypothesis predicts a contagion effect:

H1：The share prices of non-scandal firms in the same industry will decline in the response to corporate scandal announcements.

Role of Corporate Governance Hypothesis

Given the above argument, whether rivals' price reaction in the same industry to scandal announcement depends on their corporate governance characteristics and industry characteristics. A prime focus here is to see whether corporate governance characteristics have an impact on the degree of contagion. Four main aspect of corporate governance are examined, external governance mechanism, ownership structure, board characteristics, and audit.

First, external corporate governance is critical to protect outsider investor, to increase firms' transparency and information environment, and to improve firm and economic efficiency (e.g., La Porta et al, 2000; Shleifer and Vishney, 1997). China has highly decentralized political and economic systems, which provide large variation in institutional environments across its provinces and special districts, while its language, culture, and social norm remain unified (e.g., Fan et al., 2007). This provides a natural setting to examine the relationship between external governance

constraints measured as institution development and contagion effect of corporate scandals. When institution environment is weaker, firms face less governance constraints and more easily to conduct misbehavior for their personal benefits. As a result, corporate scandals in weaker institution environment reflect more corporate governance problems associated with similar firms. In addition, weaker institution environment is associated with less firm transparency and more serious information asymmetry; consequently investors tend to revise their beliefs about fundamental value of firms in weak institution environment. Thus, we predict the severe contagion effect when peer firms and scandal firms are located in weaker institution environment.

Second, a distinct characteristic of Chinese listed firms is that they have a single dominant shareholder who is local or central government and individuals. Under such concentrated ownership structure, agency problem is shifted from conflicts between shareholders and mangers to conflicts between majority shareholder and minority shareholder. Reformed from central planned economy, the state owned firms is controlled by central government or local government，and the government has a significant impact on top management and board director appointment due to concentrated ownership and historical reasons. At the same time, literature (e.g., Allen et al. 2005) has documented weak corporate governance of listed firms in China due to weak property rights protection for minority shareholders. Thus, we hypothesize that more contagion effect exist when scandal firms and non-scandal peer firms are

both state owned firms because corporate governance is similar weak among state owned firms and more homogenous among state owned firms compared with non-state firms. On the other hand, many researchers argue that the presence of multiple block holders can be an effective corporate governance mechanism for reducing expropriation incentives (Lin 2003). According to the theoretical models, multiple block holders monitor one another in order to protect their own interests. We hypothesize that the negative contagion effect from scandal announcement will decrease with the shareholdings of non-controlling block holders.

Third, several studies (Dechow et al.. 1996; Beasley 1996; Brickley et al.. 1997; Xie et al.. 2003; and Liu and Lu, 2007，Chen et al. 2006) test the effects of board characteristics on corporate fraud and earnings management. Chen et al. (2006) find corporate governance is negatively associated with existence of corporate fraud. These characteristics include board size, number of board meetings, independence of board and the duality of CEO and Chairman of the board. Xie et al. (2003) report a negative association between board size and discretionary accruals and conjecture that larger boards consist of a greater number of experienced members can curb earnings management. They also identify a negative association between the number of board meetings and discretionary accruals. Dechow et al. (1996), Beasley (1996) and Xie et al. (2003) find that a higher percentage of independent board members is associated with less aggressive earnings management. China's modern enterprise system reform has restructured former SOEs into limited liability companies with share capital and

charters; as Company Law requested, the board of directors have similar structures and responsibilities as those in capitalist societies. The board is responsible for making major policy decision as well as monitoring operations of the business. It is believed that the board has a major responsibility to deter corporate misconduct and corporate fraud. Therefore, we argue that firms with good corporate governance (i.e., larger board size, large number of board meetings, more independent board and separation of CEO and Board Chairman) would confront less severe negative effect of other firms' fraud-announcement.

Finally, in corporate governance literature, auditors are assumed as important external governance mechanism to detect and correct misconduct and violation of firms (e.g., Becker et al. 1998; Bartov et al. 2000). Bartov et al. (2000) find the association between the accounting discretionary and poor corporate governance, suggesting that weak corporate governance including poor audit quality encourages the managerial opportunisms. Even independent audits are quite new in china and although there has been rapid progress in developing audit standards, the lack of trained personnel means the standards are not yet being fully implemented (Chen et al. 2006). However, high audit quality could help to deter and correct corporate fraud because of reputation concern and audit efforts by big audit firms. Thus, we expect that Big-Four auditors can alleviate the contagion effect of scandal announcements from peer firms.

In a sum, the corporate scandal announcements would not convey the same

degree of bad news to all the other firms in the same industry. The contagion effect varies across firms' corporate governance quality. Accordingly, our second research hypothesis is:

H2: Scandal-announcement-induced contagion share price effect will be negatively associated with cross-sectional difference in corporate governance quality as measured by region institution environment, ownership, board characteristics, and audit.

Role of Degree of Competition

Besides corporate governance quality, industry characteristics also condition the external effect of corporate scandals. Degree of industry competition should be considered first, since there is general consensus that product market competition in an industry affects managerial decisions and therefore is an important determinant of firm behavior and firm profitability (Nickell, 1996). Corresponding, this study argues that contagion effect from corporate fraud announcement will dependent on the degree of industry competition.

Rivals of corporate fraud firms can take this opportunity to increase company image and expand their market share, especially for rival firms in low competitive industries. The corporate fraud announcements have two opposite effects on the competitors: the competitive effect and the contagion effect. The competitive effect suggests that corporate fraud announcements by one firm result in positive valuation

effects on other firms in the same industry. One firm can gain competitive advantaging by becoming better product/service provider. For example, Lang and Stulz (1992) and the studies following them all stress that low degree of industry competition make it easier for rivals to get market share, that is, low degree of industry competition is associated with competitive effect instead of contagion effect. However, they deny the competitive effect of bankruptcy in highly competitive industries. They believe that in a perfectly competitive market structure, shareholders of rival firms in the same industry cannot earn rents from an increase in demand for the firms' products caused by the decrease in demand for the products of the bankrupt firm.

On the other hand, due to weak institution in China, industry-specific sub-rules can also be regarded as side effects of competition. Sub-rules refer to those illegal practices prevalently adopted by the firms to enter the market or gain the advantages over their competitors. An astonishing case is the 2008 Chinese milk scandal, which reveals the Melamine tainted milk existed in products from 22 companies, including Mengniu and Yili. Wall Street Journal (Dec 2008) reports that tainting of milk is open secret in China Milk industry[4]. In a weak regulatory environment, the high degree of intra-industry competition is, the more possibly the firms in this industry take the

[4] Before melamine-laced milk killed and sickened Chinese babies and led to recalls around the world, the routine spiking of milk with illicit substances was an open secret in China's dairy regions, according to the accounts of farmers and others with knowledge of the industry. Farmers here in Hebei province say in interviews that "protein powder" of often-uncertain origin has been employed for years as a cheap way to help the milk of undernourished cows fool dairy companies' quality checks. When the big companies caught on, some additive makers switched to toxic melamine which mimics protein in lab tests and can cause severe kidney damage to evade detection. http://online.wsj.com/article/SB122567367498791713.html?mod=googlenews_wsj

sub-rules. Currently, the sub-rules like bribing the officials are very prevalent in the fields of retail, real estate, construction, or medicine. In 2006, China government listed anti-business-bribery as the top task of anti-corruption, which suggested its seriousness in China. Under the high competitive industry and weak regulatory environment in China, high competition could force firms to follow sub-rules of the industry and thus exaggerate negative contagion effect of scandals. In general, contagion effect is attenuated by competitive effect in industries of low competition degree. Hence we make the following hypothesis for this scenario.

H3: The contagion effect of corporate fraud announcements on peer firms is weaker in industries of lower competition degree.

3. Sample selection and scandal firms' stock price behavior

3.1 Sample and data

To investigate the contagion effect of corporate scandal announcement, we collect corporate scandal events of listed firms. In this study, an event is defined as a scandal if a listed firm or its management or de facto controlling shareholder is (a)Investigated or punished by China Securities Regulatory Commission (or CSRC) or other governmental bodies alike; or (b) Publicly reprimanded by the Shanghai Securities Exchange or the Shenzhen Stock Exchange[5]; or (c) Investigated, arrested, or punished by judicial units like police, a procuratorate, or a court, or Disciplinary Inspection Committee of Communist Party of China[6]. According to the definition of

[5] The two stock exchanges were authorized to reprimand the listed firms in public in 1999. The first firm reprimanded by the stock exchange was Lengguang Corporation (600629) on July 9, 1999.

[6] This organization is one of the key departments of Communist Party of China. Its duty is to investigate and

scandals, we hand collect the first announcements on scandals from the following sources: public announcements by the listed firms, Monthly Bulletin of the CSRC, public announcements of the Shanghai Securities Exchange and the Shenzhen Stock Exchange, news reports from the China Securities Journal, Securities Times, and Shanghai Securities News, news reports by China's major business and finance websites such as http://finance.sina.com, http://www.p5w.net, http://cn.finance.yahoo.com, http://business.sohu.com, http://www.cninfo.com, http://www.cnlist.com. To obtain the sample as complete as possible, we use the online search engines to find information with any possible combination of the key words "violation of regulations" , "Financial Fraud", "Insider Trading", "Market Manipulation", "Information Disclosure", "Corruption", "Punishment", Suspect, "Reprimand", "Trial", "Sentence", "Listed firm", or "Scandal". We also refer to the China Regulatory Enforcement Research Database of the China Stock Market Accounting Research (CSMAR) database as supplements to our sample firms. For every searched scandal, we employ diversified sources of information to cross check its reliability. For those scandals reprimanded by the stock exchanges, the disclosure date is easily identified. But for scandals intervened by the CSRC or judicial units, there is a typical process of investigation, conclusion, and penalty. For one scandal, there are multiple disclosures on the above procedures. We trace the earliest date of disclosure to guarantee the "Initial Disclosure Date"[7].

The final sample covers 330 firm-scandal events from 1997 to 2008. To be included in the sample, the event firm must have complete disclosure date, financial data, stock price and return and industry information for industrial firms. We obtain

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punish the CPC members, especially those with high-ranking positions in the Party. The cases handled by the Committee are mostly serious and significant to the society and the Party.

[7] In some cases, it is the date when the firm announces or the news media report that the CSRC or the judicial units begin to investigate the firm or retain or arrest the mangers; in other cases, it is the date when the case is concluded or punishment is imposed.

those data items from the CSMAR Database. We exclude the scandals that were disclosed before December 16, 1996[8]. To mitigate confounding effect, we further exclude event firms if there is any other public information disclosure on merger and acquisition, bankruptcy, earnings release, earnings warning, de-listing, suspension of listing, dividend initiation or distribution, annual reports, interim reports, quarterly reports, Special Treatment (ST), or Particular Transfer (PT)[9]. We also discard corporate fraud events that failed to convey unfavorable information about the event firm's value because inclusion of these events would add noise to the analysis. The final sample includes five broad type of scandal listed in Appendix B. Table 1 presents the distribution of corporate scandals across year and industry.

[Insert Table 1 here]

As showed in Table 1, the scandals are not evenly distributed among the years and there is a sharp rise in the number of events in 2001 and 2005. The high incidence of disclosed scandals in 2001 is just consistent with "Year of Regulation" launched by the CSRC (Chinese Securities Regulatory Commission), while the high incidence of disclosed scandals in 2005 is consistent with the China's Share Reform. Panel B

[8] There are only 24 scandals before 1997, including those without definite disclosure dates. The number is small simply because of the small number of listed firms and the weak regulatory enforcement actions. In the early years since the establishment of the stock market, the main task of the government is to select qualified firms to be listed, thus regulatory actions are not frequent. Selection of December 16, 1996 as the start of the sample period is based on the following considerations. The one is that the efficiency of China stock market in the early years is questioned. The other is the trading rules of the stock market changed significantly on December 16, 1996, which makes the two periods (before versus after this date) incomparable Before December 16, 1996, the two stock exchanges changed the trading price limits very frequently, and they did not apply the uniform trading price limits. The current price limit was not uniformly set until December 16, 1996. It stipulates that except the first trading day of listing, the first trading day after seasoned equity offerings, or the first trading day after the stock trading was long suspended, all the daily stock return should not be higher than 10% or lower than –10%.

9 This screening step is to eliminate the confounding effect of other significant events on the scandal firm. ST and PT are unique concepts on China's stock market. Since April 22, 1998, Shanghai Stock Exchange and Shenzhen Stock Exchange have begun to apply ST mechanism to signal to investors. A firm is titled with ST if its net income becomes negative for two consecutive years, or if its net asset per share in the most recent year is lower than its par value. The daily stock price of ST firm is limited within the range ±5% and the interim reports must be audited. PT mechanism was applied since July 9, 1999 by the two stock exchanges. If a firm's net income becomes negative for three consecutive years, then the firm should be suspended listing, and the two stock exchanges provide particular transfer service. PT firms are not de facto trading stocks any longer because it can only be traded every Friday. Its daily ceiling price limit is 5% but no limit is made for floor price. PT mechanism was terminated on January 1, 2002.

shows the frequency of scandals by the industry and the full scandal samples are distributed in 54 industries. The Conglomerates has the highest incidence with 24 scandals.

Panel B of Table 1 also presents four competition measures for every industry. The mean Herfindahl Index of the 54 industries is 0.142. The higher Herfindahl Index (HHI) is, the lower the degree of competition is. The lowest competition industries are Conglomerates (HHI==0.034) and Retailer Trade (HHI==0.046).

3.2 Methodology and measures

Dependent Variables: $\underline{CAR_{peer}}$

Non-scandal peer firms are identified from CSMAR database using historical 3-digit industry classification code as discussed above. Unfortunately the CSMAR database does not record all the updates of industry codes[10]. In order to appropriately document the industry, we cross check the industry change of every firm from its annual reports or public announcements. The criteria of identifying industries are as follows. If a firm announces the exact date of industry change, then the date is adopted. Under most circumstances, a firm announces the material change of industry after its meeting of board or meeting of shareholders. We use the announcement date of the meeting of shareholders because any important resolution should come into effect after the approval of the meeting of shareholders. If a firm changes its industry

[10] The current industry classification method is based on the CSRC's guidance promulgated in March 2001. The key point in the guidance is that a firm is classified into a certain industry if over 50% of its core business revenue comes from that industry, or if over 30% of its core business revenue comes from that industry and no other industry revenue can represent over 30% of its total revenue. Some firms changed industries because of change of controlling shareholder, change of business strategy, or merger and acquisition, but CSMAR does not record all. In particular, the CSMAR does not provide the exact date of change in industry.

but never explicitly announces that, then we employ the method of the CSRC to classify the firm into the right industry and the date of change is defined as December 31 of the previous year, or January 1 of the current year. As for the industry code, we uniformly adopt the one formulated by the CSRC, or the first capital letter and the following two digits[11].

To reduce the outliers' influence, we winsorize daily stock return on the top and bottom 0.5%. Market-adjusted daily stock returns are used to document the share price response to corporate fraud announcements. CAR_{peer} is Cumulative Abnormal Return of peer firm over a five-day window (day -2 to day +2) that spans the day of first release describing the corporate fraud.

Corporate governance measures

RegionWeakness: we focus on four indices of region institution environment: marketization index, Legal index, Openness, and GDP per capital. Based on the median of each index, we classify sample firms into two groups: high index group (i.e., stronger institution environment) and low index group (i.e., weaker institution environment). If peer firms and scandal firms are located in low index group, RegionWeakness is equal to one, otherwise, zero.

OWN: We hand collect the ultimate owner information from annual report and trace the ownership change to double check it. According to nature of ultimate owner, we classified firms into two groups: state-owned firms and non-state owned firms. If

[11] For example, as showed in Panel B of table 1, A01 is the code for agriculture, C01 means food processing industry, and C11 refers to textile, etc.

the ultimate owner of a scandal firm is the state and the controlling shareholder of its peer firms is also the state, dummy variable OWN equals one; otherwise equals zero.

PCT_1: This is the ownership percentage of largest shareholder, which proxy for largest shareholder's incentive and ability to expropriate minority shareholders. The ownership of the largest shareholder is from CSMAR Shareholder Database.

PCT_2: This is the ownership of non-controlling block holders measured as the aggregate ownership by the second- through tenth-largest shareholders (listed firms in China must report the ownership of the ten largest shareholders). The ownership of the ten largest shareholders is from CSMAR Shareholder Database.

Board characteristics：Beasley (1996) and Chen et al. (2006) document that corporate governance mechanisms have an impact on corporate fraud in different setting. Data on board characteristics are obtained from CSMAR Corporate Governance database, which cover corporate governance information for China listed firms only since 1999. To capture this multi-dimensional nature of governance and firms' monitoring choices, the characteristics explored here are the natural log of the number of board meetings of firm i in period t ($MEET_{it}$), the natural log of the number of board members of firm i in period t ($BOARDSIZE_{it}$), the percentage of independent board members of firm i in period t ($INDEP_{it}$), and a dichotomous variable for the separation of CEO and Chairman of the board in firm i in period t ($DUAL_{it}$). As conventionally defined in the literature, smaller boards reflect greater board strength, as easier communication and coordination allow more efficient

monitoring (Yermack, 1996). In contrast, larger boards face higher coordination costs and free rider problems reducing the effectiveness of monitoring (Lipton and Lorsch, 1992). The independence of directors who serve on the board is also important in increasing board strength and monitoring of the CEO, as conventionally defined in the literature (e.g., Fama and Jensen, 1983; Weisbach, 1988).

Audit quality (BIG)：We obtain auditor names from CSMAR Auditor Database. In this study, we partition auditors on the basis of market share. Specifically, following DeFond et al. (1999) and Wang et al. (2008), we classify audit firms as BIG by whether they are a Top-10 auditor based on total assets audited in the China stock market and use the dummy variable BIG as the proxy for audit quality.

Measure of Competition

Following Karuna (2007), we also define competition as the extent to which firms attempt to win business from their rivals and focus on three determinants of competition: product substitutability, market size, and entry cost. Product substitutability is defined as price-cost margin, calculated as sales divided by operating cost (DIFF) at industry level. The higher the value of DIFF is, the lower the product substitutability in that industry, then the lower the competition in that industry. Further, market size of product reflects the density of consumers in a market or industry and we measure it here by the log-transformed industry sales (MKTSIZE) at the industry level multiply by -1. The lower MKTSIZE means the higher price competition in that industry. In addition, entry costs (ENTRYCOST) are the minimal level of investment (exogenous sunk cost) that must be incurred by each entrant firm

to an industry prior to commencing production (i.e., set-up costs). In this study, entry cost is computed as the weighted average gross value of the cost of property, plant and equipment for firms at the industry level, weighted by each firm's market share in this industry. Additionally, we also use Herfindahl index (HHI) to proxy for the industry concentration, or the intra-industry competition degree. We measure industry concentration in the same manner as DeFond and Park (1999), computed as the sum of the squares of the market shares of the firms in the industry, where market share is defined as firm sales divided by total industry sales. The higher value of HHI indicates the lower level of industry competition.

Control Variables

The control variables in the study include Leverage, Size, Correlation, and $CAR_{scandal}$, which are introduced as follows.

Leverage: Lang and Stulz (1992) empirically support that leverage can magnify contagion effect of bankruptcy announcements. We consider the average leverage at the industry level measured as total liabilities to total assets (LEVERAGE).[12]

Size: The intra-industry effects of corporate fraud may depend on firm size. The larger a firm is, the more likely it is to take the leading role in the industry. On one hand, announcements of corporate frauds by firms with relatively small market shares are less likely to be important for rivals, firms with smaller market shares typically serve narrower markets which may not be representative of the markets served by other firms in the industry (Hertzel, 1991). On the other hand, corporate fraud announcements of firms that are dominant in the industry are expected to have more

[12]We also use total debt to total assets (DEBT) and results remain similar.

pronounced intra-industry effects. These firms are more likely to be perceived as leaders in the industry and normally receive more publicity than other firms (Akhigbe,Madura, Whyte, 1997). Atiase (1985) and Slovin, Sushka and Bendeck (1991) both state that information production and dissemination are a positive function of firm size. Firm size is defined as the logarithm of a firm's total assets in the previous year.

`Correlation: Lang and Stulz (1992) contend that the contagion effect is larger for industries in which competitors have investments and cash flows similar to those of the bankrupt firms. Firth (1996), Otchere and Ross (2002), Tawatnuntachai and Mello (2002), Xu, Najand and Ziegenfuss (2006) also find that cash flow similarity magnifies the contagion effect for events like announcements of dividend changes, share repurchase, stock splits, earnings restatement, etc. Following prior research, we use the correlations between returns of a scandal firm and those of its rivals in the same industry to indicate the similarity of cash flow and investments. The period from 220 to 20 trading days before the disclosure date (-220, -20) is used to calculate the return correlations.

$CAR_{scandal}$: Herzel (1991), Erwin and Miller (1998), Akhibke and Madura (1999), Asthana and Mishra (2001), Xu, Najand and Ziegenfuss (2006) all state that magnitude of the information transferred by the event firm determines the degree of external effect. We measure the magnitude of information as the abnormal returns of corporate fraud events ($CAR_{scandal}$). That is, the more significantly negative the abnormal returns of the scandal firms are, the more information on bad corporate

governance is transferred to the industry, hence the more negatively the rivals in the industry are influenced. $CAR_{scandal}$ is Cumulative abnormal return of corporate fraud firms over a five-day window (day -2 to day +2) that spans the day of first release describing the corporate fraud. A summary of measures are defined in Appendix A.

4. Empirical results

4.1 Stock price response of scandal firms and non-scandal peer firms

Table 2 presents market reactions of scandal firms and non-scandal peer firms around the first scandal disclosure date. Cumulative abnormal returns are calculated for the announcement windows (days -2 to +2), the pre-announcement windows (days -10 to -3) and two post-announcement windows (days +3 to +10 and days +3 to +60) to capture information about share price behavior around the corporate scandal announcements.

[Insert Table 2 here]

The data in Panel A of Table 2 shows that the corporate frauds in our sample are accompanied with a significantly negative mean abnormal return of -5.66 percent in the five-day window around announcements. Scandal firms also exhibit a negative mean abnormal return over the eight trading days and 58 trading days after the announcements. In summary, the corporate frauds that form the basis for our contagion tests involves a range of misconduct issues and are associated with share price declines among scandal firms. Panel B and Panel C of table 2 show the similar pattern of negative market reaction for financial fraud and non-financial fraud announcements, respectively.

4.2 Regression Analysis: contagion stock returns and firm corporate governance

This section investigates whether scandal-induced contagion effect is correlated with corporate governance. If the share price declines of peer firms do reflect investors' concern about corporate governance issues underlying corporate frauds, then contagion stock return should exhibit a positive association with measure of corporate governance quality. On the other hand, finding no association between contagion stock returns and corporate governance quality would cast doubt on our conjecture and also cast doubt on the effectiveness of the corporate governance in traditional wisdom in China.

[Insert Table 3 here]

Table 3 reports descriptive statistics for the 9972[13] peer firms with available data (corporate governance data) for cross-sectional regression tests. CAR_{peer} is small negative with mean at -0.005 and median at -0.006. For the corporate governance characteristics, ownership of second largest to tenth largest shareholders is on average 18.71%; only 11.9% firms have a separate CEO and chairman. On average firms have about 3 independent directors, about 9 board directors, and about 6 boarding meetings each year. Approximately 32 percent firms hire big-ten auditors in China.

[Insert Table 4 here]

The results of cross-sectional regress test of the impact of region institution constraints on contagion stock return are showed in Panel A of Table 4. Coefficient estimates for the year fixed-effect variables are suppressed for brevity. As prediction,

[13] Due to data limitation, we only have regional institution indices from 2001. Thus, observations before 2001 are not included in regression analysis with institution environment variables.

sign of coefficient on RegionWeakness including Marketization, Legal, and Openness is negative but insignificant. The only significant coefficient on RegionWeakness, measured as is GDP per capita is significantly negative, indicating that better region economy is related to weaker contagion effect of corporate scandal announcements.

[Insert Table 5 here]

The results of cross-sectional regress test of the influence of corporate governance on contagion stock returns are reported in Panel A of Table 5. Coefficient estimates for the year fixed-effect variables are suppressed for brevity. Leverage values are winsorized at top and bottom 0.5% to eliminate outliers' influence. The data in Table 4 reveal that contagion stock returns are statistically related to corporate governance quality. As predicted, the coefficient on OWN is -0.002 and significant at 0.01 levels, ,showing that peer firms with similar state ultimate owners as the scandal firms experience a more pronounced contagion stock price decline. On the other hand, peer firms with higher percent ownership by second largest shareholder to tenth largest shareholders experience a less pronounced stock price decline than those with lower percent ownership by multiple block holders.

In Panel A of Table 5, the coefficient on BIG is 0.002 and significant at 0.05 levels, showing that peer firms hiring big-ten auditors in china experience a less pronounced stock price decline than those hiring non-big-ten auditors. It suggests that auditor as an important external corporate governance mechanism can deter corporate frauds. However, data in Table 5 show no association between peer firms' contagion

stock return and board characteristics (e.g., DUAL, INDEP, BOARDSIZE, and MEET). Under the weak institution environment with inefficient law enforcement, the board in China may not effectively deter corporate frauds, contradicting to the results by Chen et al. (2008). In the corporate governance literature, the underlying assumption of using these board characteristics is that they capture the independence and effectiveness of the board[14]. However, concentration ownership could jeopardize the independence and effectiveness of the board. For example, Park et al. (2004) provide evidence that adding independent board members does not deter earnings management if ownership is highly concentrated. The prominent characteristics of Chinese listed firms' highly concentrated ownership structure may imply that current board characteristics in Chinese listed firms could not take an effective role in pretect minority shareholders' rights.

[Insert Table 6 here]

Table 6 reports the results of cross-sectional regression tests of the influence of industry competition level on contagion stock returns. Spillover effect from corporate frauds is the tradeoff between contagion effect and competitive effect. The higher value of HHI, DIFF, MKTSIZE and ENTRYCOST means lower industry competition. The coefficients on HHI，DIFF, MKTSIZE and ENTRYCOST are all significantly positive. For example, the coefficient on HHI is 0.026 and significant at 0.01 levels. It

[14] There are conflicting views regarding what constitutes a 'good' board. What may constitute a good board may depend on the issues facing a company at a particular point in time. The review of the literature by Hermalin and Weisbach (2003) on board composition reveals that ''the insider outsider ratio is not correlated with firm performance. However, the number of directors on a firm's board is negatively related to the firm's financial performance.''

suggests that when the Herfindahl Index increases by 0.1 (competition level decreases), the five-day cumulative abnormal stock returns for non-scandal peer firms increases by 0.26%, showing a decreasing contagion effect from the scandals. The results are consistent with our third hypotheses that the contagion effect on the fraud firm's competitors is weaker in industries of lower competition degree.

4.3 Internal governance and industry competition

Prior research suggests that industry competition affects firm governance. A recent study by Karuna (2007) shows that firms in more competitive industries provide stronger CEO equity incentives than those in less competitive industries. Karuna (2008) also find that firms in more competitive industries generally have smaller boards, more outsider directors on the board, stronger shareholder rights, and stronger overall governance. Their findings suggest that firms in high competitive industries tend to have better corporate governance than firms in less competitive industries. Good corporate governance can reduce the probability of corporate frauds and thus higher degree of competition will reduce the negative contagion effect to rival firms in the same industry. To further detangle the effect of corporate governance on contagion, we investigate whether the influence of corporate governance on contagion stock returns is dependent on industry competition level.

[Insert Table 7 here]

Table 7 shows whether the influence of corporate governance on contagion effect is conditioned on competition level. Based on Herfindahl index, we partition our

sample into three groups: the group with the highest Herfindahl index is classified as the low competition industry (Panel A of Table 6) while the group with the lowest Herfindahl index is the high competition industry (Panel B of Table 6). Interestingly, the coefficient on BIG is significant only in High Competition Group, which indicate that signaling and monitoring effect by brand-name auditors take effective in high competition industries. The results of state ownership and board characteristics do not condition on industry competition level.

4.4 Scandal types: Financial Fraud vs. non-financial fraud

Broadly, our sample includes both financial and non-financial fraud events. According Appendix B, we classify sample into financial fraud events (including Type A and Type B) and non-financial fraud event (including Type C, Type D, and Type E). As shown in Panel B and Panel C of Table 2, both financial fraud and non-financial frauds are associated with negative market reactions. Market value of financial scandal firms drop 5.34% on average during five day windows, while market value of non-financial scandal firms drop 6.09% during the same period.

To gain further insight about the circumstances under which internal and external corporate governance influences contagion stock returns, we rerun Table 4-Table6 for financial fraud group and non-financial fraud group respectively. Regression results on financial fraud event are reported in Panel B of table4, table 5, and Table 6 while empirical results on non-financial frauds are showed in Panel C of table 4, table 5, and Table 6. Financial fraud group contains 287 fraud events and 5516 peer firms, while

non-finanical fraud group is comprised of 218 non-financial fraud events and 4456 peer firms. We expect that different corporate governance mechanism would not equally affect contagion effect of two groups.

The key insight from Panel C of table 4 is that region institution environment could affect the contagion stock return in Panel A of table 4 are driven by non-financial fraud peer firms. Contagion stock return for these peer firms exhibits a reliably negative association with marketization index, legal index, and GDP development. However, those negative associations are only restricted to non-financial fraud group and, but none of coefficients on RegionWeakness is significant for financial fraud group.

By comparing the empirical results of Panel B and Panel C in table 5, we do observe that BIG auditors play more pronounced role to mitigate contagion effect in financial fraud group while ownership structure and DUAL is more relevant for non-financial fraud sample. Our results are consistent with prior research that high quality auditors could reduce manager's ability and incentive to do earning manipulation and give misleading financial reports to outside investors. However, auditors are not capable of reducing the non-financial misconduct by managers. In contrast, ownership structure could terminate the non-financial fraud by mangers due to incentive alignment associated with concentrated ownership structure. Similarly, the positive association between industry competition characteristics and contagion stock return is more pronounced for non-financial fraud group. Our results indicate

that financial reporting and other corporate operations are mainly monitored by different governance mechanisms and thus different types of corporate scandals may convey the failure of different mechanisms of corporate governances.

5. Conclusion

Previous studies investigate the intra-industry effects of announcements of corporate events including bankruptcy, dividend announcement, earnings release, and so on. However, how corporate scandals affect the industry rivals, in particularly in emerging market, is not much touched. In this study, we examine the intra-industry effects of disclosure of corporate scandals in China. Quantifying the external effects of scandals can show their harm to the society, and help investors and regulators to judge the risks accordingly.

We argue that under weak institutional environment with high information asymmetry, corporate fraud is not idiosyncratic but reflecting corporate governance problems underlying firms with similar ownership structure, industry and thus similar corporate governance. The empirical results verify the conjecture. First, we find contagion effect of scandal announcements for peer firms in China. This finding provides an explanation for stock synchronicity in emerging markets. Similar and weak corporate governance cause investors to reassess risk of peer firms in the industry and thus induce price decline in the whole industry, reflecting as stock synchronicity. Second, we find variation in the impact of scandal announcements for

peer firms. Specifically, stronger contagion effect of corporate fraud announcements on peer firms is accompanied with poorer corporate governance of peer firms. The results are consistent with the conjecture that poor corporate governance is a main underlying factor for contagion effect. It indicates that investors in China market are sophisticated enough to discriminate firms with different corporate governance. We further find that regional institutional environment, ownership structure play more pronounced role to mitigate contagion effect of non-financial scandals while quality of auditors is more relevant for reducing contagion effect of financial scandals. It indicates that financial reporting and other corporate operations are monitored by different governance mechanisms and investors in China market are sophisticated enough to realize the different function of governance mechanisms. Opposite to the prior studies (e.g., Lang and Stulz 1992, Erwin and Miller 1998) suggesting competitive effect in high competitive industries, our study finds competitive effect increases in industries with low competition. The results indicate that high competition in markets with weak regulation could force firms to follow illegal or unethical sub-rules of the industry and thus exaggerate negative contagion effect of scandals.

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Appendix A: variable definition

Variable	Definition
Dependent variable	
CAR_{Peer}	Five-day announcement cumulative abnormal returns for non-scandal peer firms
Corporate governance variable	
SOE	Dummy variable, equal to one if ultimate owner of firm is the state, otherwise zero
OWN	Dummy variable, equal to one if both scandal firm and non-scandal peer firm are SOEs, otherwise zero.
PCT_1	Percentage ownership by largest shareholders
PCT_2	Percentage ownership by second through tenth largest shareholders
DUAL	Dummy variable, equal to one if CEO and Chairman of the firms is same person, otherwise zero
INDEP	Independent director percentage, calculated as number of independent directors divided by number of total board directors
BOARDSIZE	Log of number of total board directors
MEET	Number of board meeting during the year
BIG	Dummy variable, equal to one if auditor of firm is big-ten auditor in China audit market, otherwise zero
Control Variables	
$LEVERAGE_{t-1}$	Total liabilities divided by total assets in prior year
SIZE	Log of total assets
CORRELATION	Measured as Pearson correlation between returns of a scandal firm and those of its rivals in the same industry during the period from 220 to 20 trading days before the disclosure date (-220, -20).
$CAR_{Scandal}$	Five-day announcement cumulative abnormal returns for scandal firms
Industry competition	
HHI	Computed as the sum of the squares of the market shares of the firms in the industry, where market share is defined as firm sales divided by total industry sales.
DIFF	Calculated as sales divided by operating cost at industry level.
MKTSIZE	the log-transformed industry sales at the industry level
ENTRYCOST	Computed as the weighted average gross value of the cost of property, plant and equipment for firms at the industry level, weighted by each firm's market share in this industry.

Region Measures	
MARKETIZATION	This is a comprehensive index that captures the following aspects of regional market development: (1) relationship between government and market, including the role of market in allocating resources and firms' policy burden in addition to taxes; (2) development of non-state business in terms of the ratio of industrial output by private sector to total industrial output; (3) development of product markets in terms of the degree of regional trade barriers; (4) development of factor markets captured by foreign direct investment and labor mobility; and (5) development of market intermediaries and legal environment. (Fan and Wang, 2006)
LEGAL	The degree of legal environment development, measured by the number of lawyers as a percentage of the population, the efficiency of the local courts and protection of property rights, for each province or provincial level region (Fan and Wang, 2006)
OPENNESS	The total foreign imports and exports scaled by the GDP of the region for the year
PERGDP	GDP per capital at region level

Appendix B: Scandal type

Scandal type	Description
A	incomplete, late or lagging information disclosure; Information Concealing;
B	Financial Fraud, Misstatement on the revenue, income, ASSETS, other items that materially change the financial position of a firm, Crimes with misstates financial reports.
C	Corruption, including bribery, embezzlement, appropriation, abuse of power, or others.
D	Inside trading or market manipulation
E	other administrative violation, irregularities; other crimes,

Table 1: Distribution of Corporate Scandals, 1997-2008

The full sample includes 330 disclosed corporate scandals. Panel A shows frequency distribution by year. Panel B presents the distribution of scandals in each industry. The full scandal samples are distributed in 54 industries with industry competition level. Industry Code is prescribed by the CSRC. DIFF is calculated as sales divided by operating cost at industry level. MKTSIZE is the log-transformed industry sales at the industry level. ENTRYCO is computed as the weighted average gross value of the cost of property, plant and equipment for firms at the industry level, weighted by each firm's market share in this industry.

Panel A: Yearly Frequency Distribution of Corporate Scandals

Year	N	Percent
1997	8	2.42%
1998	9	2.73%
1999	14	4.24%
2000	20	6.06%
2001	39	11.82%
2002	36	10.91%
2003	32	9.70%
2004	38	11.52%
2005	90	27.27%
2006	18	5.45%
2007	14	4.24%
2008	12	3.64%
Total	330	100.00%

Panel B: Frequency distribution by industry

Industry Code	Industry Name	N	Percent	HHI	DIFF	ENTRY COST	MKTSIZE
A01	Agriculture	14	4.24%	0.154	0.850	1.253	-23.398
B01	Coal Mining and Quarrying	1	0.30%	0.429	0.648	3.592	-22.747
C01	Food Processing	9	2.73%	0.101	0.812	0.943	-23.901
C03	Food Manufacturing	3	0.91%	0.285	0.734	2.638	-23.865
C05	Beverages	8	2.42%	0.109	0.620	0.778	-24.292
C11	Textile	9	2.73%	0.068	0.858	0.736	-24.057
C13	Garment and Other Fabric Products Manufacturing	10	3.03%	0.118	0.806	1.343	-23.563

C14	Furs, Leather, Feather and Related Products Manufacturing	1	0.30%	0.575	0.739	6.625	-20.977
C31	Paper and Allied Products	7	2.12%	0.140	0.814	1.246	-23.275
C35	Printing	2	0.61%	0.414	0.797	6.396	-20.829
C41	Petroleum Processing & Coking	3	0.91%	0.229	0.813	1.585	-24.417
C43	Raw Chemical Materials and Chemical Products	18	5.45%	0.048	0.778	0.265	-25.243
C47	Chemical Fiber Manufacturing	2	0.61%	0.197	0.872	1.165	-24.103
C49	Plastics Manufacturing	4	1.21%	0.101	0.825	1.411	-23.553
C51	Electronic Components and Appliance	6	1.82%	0.119	0.815	0.867	-24.099
C55	Consumer Electronics Manufacturing	3	0.91%	0.224	0.860	1.716	-25.091
C57	Other Electronic Appliance Manufacturing	1	0.30%	0.609	0.602	8.969	-19.676
C61	Non-metallic Mineral Products	9	2.73%	0.075	0.764	0.516	-24.184
C65	Ferrous Metal Smelting and Extruding	5	1.52%	0.070	0.870	0.805	-26.233
C67	Non-Ferrous Metal Smelting, Rolling, Drawing, And Extruding	2	0.61%	0.092	0.856	0.747	-25.689
C69	Metal Products	5	1.52%	0.393	0.809	1.734	-23.732
C71	General Machinery Manufacturing	4	1.21%	0.095	0.774	0.717	-24.060
C73	Special Equipment Manufacturing	8	2.42%	0.058	0.790	0.435	-24.654
C75	Transportation Equipment Manufacturing	14	4.24%	0.054	0.830	0.395	-25.448
C76	Electrical Machinery and Equipment Manufacturing	11	3.33%	0.086	0.774	0.534	-24.834
C78	Instruments and Appearances, Culture and Office Machinery Manufacturing	3	0.91%	0.175	0.707	2.294	-21.859
C81	Medicine Manufacturing	17	5.15%	0.047	0.630	0.364	-24.920
C85	Biological Products Manufacturing	2	0.61%	0.178	0.564	1.870	-22.289
C99	Other Manufacturing	6	1.82%	0.195	0.770	1.675	-22.892
D01	Electric Power, Steam and Hot Water Generation and Supply	12	3.64%	0.093	0.736	0.470	-25.323

D05	Water Generation and Supply	1	0.30%	0.461	0.467	7.071	-20.906
E01	Civil Engineering Construction	6	1.82%	0.163	0.880	1.185	-24.266
E05	Decoration	1	0.30%	0.534	0.846	6.278	-22.325
F05	Pipeline transportation	2	0.61%	1.000	0.700	19.640	-19.192
F07	Water Transportation	1	0.30%	0.386	0.793	2.715	-22.881
F09	Air Transportation	1	0.30%	0.305	0.776	4.007	-25.209
F11	Support Service for Transportation	10	3.03%	0.076	0.493	0.719	-24.128
F21	Warehousing	1	0.30%	0.962	0.616	10.237	-22.394
G81	Communications Equipment Manufacturing	11	3.33%	0.156	0.800	0.733	-24.704
G83	Computer and related Equipment Manufacturing	5	1.52%	0.214	0.863	2.131	-23.645
G85	Communication Service	5	1.52%	0.541	0.707	4.056	-22.723
G87	Computer Application Service	12	3.64%	0.102	0.751	0.627	-24.177
H01	Wholesale of Food, Beverage, Tobacco and Home Products	2	0.61%	0.259	0.811	2.883	-22.553
H03	Wholesale of Energy, Material and Machine Electric Equipment	5	1.52%	0.298	0.906	4.769	-22.141
H11	Retail Trade	7	2.12%	0.046	0.831	0.366	-25.384
H21	Trade Brokers and Agents	7	2.12%	0.198	0.920	1.190	-25.619
J01	Real Estate	13	3.94%	0.051	0.691	0.331	-24.536
K01	Public Facilities Services	3	0.91%	0.164	0.566	1.653	-23.136
K34	Tourism	7	2.12%	0.174	0.555	1.660	-21.874
K99	Other social services	1	0.30%	0.896	0.712	10.187	-21.133
L01	Publishing	1	0.30%	0.504	0.678	9.290	-20.007
L10	Radio, Film and Television	1	0.30%	0.525	0.514	6.849	-20.799
L20	Information Services	4	1.21%	0.402	0.690	5.376	-20.947
M	Conglomerates	24	7.27%	0.034	0.765	0.261	-24.861
Total		330	100.00%	0.142	0.761	1.345	-24.136

Table 2: Market Reactions of Scandal Firms and Their Industry peer

The table presents the market reactions of scandal firms and the corresponding industry peers. Daily stock returns are market-adjusted return and are then compounded over time. Day 0 is the trading date of the first scandal-related press release issued by the scandal firm or the regulator. *, **, *** denotes a significant two-tailed t-test of the null hypothesis that the man cumulative abnormal return is different from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Panel A: full sample

	Scandal firms			Industry Peer firms		
Variable	N	Mean	Median	N	Mean	Median
Announcement (day -2 to +2)	330	-5.66%***	-4.58%	9972	-0.48%***	-0.57%
Pre-announcement(day -10, to -3)	330	-0.95%**	-0.95%	9972	-0.42%***	-0.51%
Post-announcement(day +3 to +10)	330	-1.13%***	-0.61%	9972	-0.14%**	-0.30%
Post-announcement(day +3 to +60)	330	-4.64%***	-5.40%	9972	-2.16%***	-3.12%

Panel B: financial fraud events

	Scandal firms			Industry Peer firms		
Variable	N	Mean	Median	N	Mean	Median
Announcement (day -2 to +2)	188	-5.34%***	-4.76%	5516	-0.30%***	-0.41%
Pre-announcement(day -10, to -3)	188	-0.27%	-0.56%	5516	-0.41%***	-0.53%
Post-announcement(day +3 to +10)	188	-0.72%	-0.45%	5516	-0.12%*	-0.32%
Post-announcement(day +3 to +60)	188	-3.23%***	-3.86%	5516	-2.08%***	-2.93%

Panel C: non-financial events

	Scandal firms			Industry Peer firms		
Variable	N	Mean	Median	N	Mean	Median
Announcement (day -2 to +2)	142	-6.09%***	-4.43%	4456	-0.70%***	-0.81%
Pre-announcement(day -10, to -3)	142	-1.85%***	-1.23%	4456	-0.44%***	-0.48%
Post-announcement(day +3 to +10)	142	-1.68%**	-0.99%	4456	-0.16%*	-0.27%
Post-announcement(day +3 to +60)	142	-6.52%***	-6.19%	4456	-2.25%***	-3.48%

Table 3: Descriptive Statistics for Non-scandal Peer Firms

Table 3 reports descriptive statistics for the 9972 (9661) peer firms with available data (corporate governance data) for cross-sectional regression tests. CAR_{peer} is five-day announcement cumulative abnormal stock returns for non-scandal peer firms. OWN is dummy variable, equal to one if both scandal firm and non-scandal peer firm are SOEs, otherwise zero. PCT_2 is percentage ownership by second through tenth largest shareholders. DUAL is Dummy variable, equal to one if CEO and Chairman of the firms is same person, otherwise zero. INDEP is Independent director percentage, calculated as number of independent directors divided by number of total board directors. BOARDSIZE is Log of number of total board directors. MEET is Number of board meeting during the year. BIG is Dummy variable, equal to one if auditor of firm is big-ten auditor in China audit market, otherwise zero. $LEVERAGE_{t-1}$ is calculated as total liabilities divided by total assets in prior year. SIZE is Log of total assets. CORRELATION is measured as Pearson correlation between returns of a scandal firm and those of its rivals in the same industry during the period from 220 to 20 trading days before the disclosure date (-220, -20).$CAR_{scandal}$ is Five-day announcement cumulative abnormal returns for scandal firms.

Variable	N	Mean	Median	SD.	Min	Max
Dependent variable						
CAR_{Peer}	9972	-0.005	-0.006	0.046	-0.322	0.294
Corporate governance variable						
RegionWeakness-Dummy						
Marketization	8705	0.361	0.000	0.480	0.000	1.000
Legal	8705	0.365	0.000	0.481	0.000	1.000
Openness	8705	0.431	0.000	0.495	0.000	1.000
GDP per	8705	0.420	0.000	0.494	0.000	1.000
OWN	9972	0.400	0.000	0.490	0.000	1.000
PCT_1	9661	0.405	0.387	0.166	0.004	0.886
PCT_2	9661	0.187	0.169	0.135	0.003	0.660
DUAL	9661	0.119	0.000	0.324	0.000	1.000
INDEP	9661	0.271	0.333	0.138	0.000	0.667
BOARDSIZE	9661	2.225	2.197	0.236	0.693	2.944
MEET	9661	6.854	7.000	3.558	2.000	32.000
BIG	9972	0.321	0.000	0.467	0.000	1.000
Competition						
HHI	9972	0.076	0.054	0.067	0.020	1
DIFF	9972	0.757	0.775	0.087	0.436	1.032
MKTSIZE	9972	-24.786	-24.836	0.856	-27.018	-19.192
ENTRYCOST	9972	0.558	0.387	0.611	0.230	19.640

Control variable						
$LEVERAGE_{t-1}$	9972	0.475	0.477	0.189	0.079	1.049
SIZE	9972	21.159	21.102	0.955	16.831	25.827
CORRELATION	9972	0.424	0.428	0.157	-0.258	0.901
$CAR_{Scandal}$	9972	-0.057	-0.047	0.046	-0.299	0.000

Table 4: OLS Regression of Industry Portfolio CARs around the Announcements of Scandals: region institution environment of peer firms and event firms

Table 4 provides the results of cross-sectional regress test of the influence of institution environment on contagion stock returns are reported. CAR_{peer} is five-day announcement cumulative abnormal stock returns for non-scandal peer firms. RegionWeakness Dummy variable equals to one if both scandal firm and non-scandal peer firm are located in weak institution regions with regards to marketization, legal, openness, and GDP per capita, otherwise zero. $LEVERAGE_{t-1}$ is calculated as total liabilities divided by total assets in prior year. SIZE is Log of total assets .CORRELATION is Measured as Pearson correlation between returns of a scandal firm and those of its rivals in the same industry during the period from 220 to 20 trading days before the disclosure date (-220, -20). $CAR_{scandal}$ is Five-day announcement cumulative abnormal returns for scandal firms. Huber/White/sandwich adjusted standard error are in brackets.* denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Panel A: for full sample;

	(1)	(2)	(3)	(4)
Region institution of peer and event firms(RegionWeakness)				
Marketization	-0.002			
	(0.001)			
Legal		0.000		
		(0.001)		
Openness			-0.001	
			(0.001)	
GDP per				-0.002*
				(0.001)
Control variables				
LEVERAGEt-1	-0.009***	-0.009***	-0.009***	-0.009***
	(0.003)	(0.003)	(0.003)	(0.003)
SIZE	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.003	-0.003	-0.003	-0.003
	(0.003)	(0.003)	(0.003)	(0.003)
CARscandal	0.030***	0.030***	0.030***	0.031***
	(0.011)	(0.011)	(0.011)	(0.011)
Constant	-0.063***	-0.064***	-0.064***	-0.064***
	(0.013)	(0.013)	(0.013)	(0.013)

Year dummies	YES	YES	YES	YES
Obs.	8705	8705	8705	8705
Adj.R2	0.011	0.010	0.011	0.011

Panel B: for financial fraud sample:

	(1)	(2)	(3)	(4)
Region institution of peer and event firms				
Marketization	-0.001			
	(0.001)			
Legal		0.001		
		(0.001)		
Openness			0.001	
			(0.001)	
GDP per				0.001
				(0.001)
Control variables				
LEVERAGEt-1	-0.010***	-0.010***	-0.010***	-0.010***
	(0.004)	(0.004)	(0.004)	(0.004)
SIZE	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.001	-0.000	-0.000	-0.000
	(0.004)	(0.004)	(0.004)	(0.004)
CARscandal	0.080***	0.079***	0.079***	0.079***
	(0.018)	(0.018)	(0.018)	(0.018)
Constant	-0.079***	-0.081***	-0.080***	-0.080***
	(0.017)	(0.017)	(0.017)	(0.017)
Year dummies	YES	YES	YES	YES
Obs.	4901	4901	4901	4901
Adj.R2	0.029	0.029	0.029	0.029

Panel C: for non-financial fraud events;

	(1)	(2)	(3)	(4)
Region institution of peer and event firms				
Marketization	-0.003**			
	(0.002)			
Legal		-0.003*		
		(0.002)		
Openness			-0.004***	
			(0.002)	
GDP per				-0.005***
				(0.001)
Control variables				
LEVERAGEt-1	-0.006	-0.006	-0.006	-0.006
	(0.004)	(0.004)	(0.004)	(0.004)
SIZE	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.007	-0.007	-0.007	-0.007
	(0.005)	(0.005)	(0.005)	(0.005)
CARscandal	-0.000	0.001	0.001	0.001
	(0.015)	(0.014)	(0.014)	(0.014)
Constant	-0.057***	-0.058***	-0.058***	-0.057***
	(0.017)	(0.017)	(0.017)	(0.017)
Year dummies	YES	YES	YES	YES
Obs.	3804	3804	3804	3804
Adj.R2	0.017	0.017	0.018	0.019

Table 5: OLS Regression of Industry Portfolio CARs around Scandal Announcements: The Influence of Corporate Governance

Table 5 provides the results of cross-sectional regress test of the influence of corporate governance on contagion stock returns are reported. CAR_{peer} is five-day announcement cumulative abnormal stock returns for non-scandal peer firms. OWN Dummy variable, equal to one if both scandal firm and non-scandal peer firm are SOEs, otherwise zero.PCT_1 is the percentage ownership by largest shareholder. PCT_2 is percentage ownership by second through tenth largest shareholders. DUAL is Dummy variable, equal to one if CEO and Chairman of the firms is same person, otherwise zero. INDEP is Independent director percentage, calculated as number of independent directors divided by number of total board directors. BOARDSIZE is Log of number of total board directors. MEET is Number of board meeting during the year. BIG is Dummy variable, equal to one if auditor of firm is big-ten auditor in China audit market, otherwise zero. $LEVERAGE_{t-1}$ is calculated as total liabilities divided by total assets in prior year. SIZE is Log of total assets. CORRELATION is measured as Pearson correlation between returns of a scandal firm and those of its rivals in the same industry during the period from 220 to 20 trading days before the disclosure date (-220, -20).$CAR_{scandal}$ is Five-day announcement cumulative abnormal returns for scandal firms. Huber/White/sandwich adjusted standard error are in brackets.* denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Panel A: for full corporate fraud events;

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Corporate governance							
OWN	-0.002**						
	(0.001)						
PCT_1		0.004					
		(0.004)					
PCT_2		0.013***					
		(0.005)					
DUAL			-0.000				
			(0.001)				

INDEP				-0.005			
				(0.006)			
BOARDSIZE					0.000		
					(0.002)		
MEET						-0.000	
						(0.000)	
BIG							0.002**
							(0.001)
Control variables							
$LEVERAGE_{t-1}$	-0.008***	-0.007**	-0.007**	-0.007**	-0.007**	-0.007**	-0.007***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
SIZE	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.005	-0.004	-0.005	-0.005	-0.005	-0.005	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
CARscandal	0.030***	0.025**	0.026**	0.026**	0.026**	0.026**	0.029***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Constant	-0.031***	-0.048***	-0.040***	-0.040***	-0.040***	-0.048***	-0.029**
	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	9972	9661	9661	9661	9661	9661	9972

Adj.R2	0.009	0.009	0.008	0.008	0.008	0.008	0.009

Panel B: for financial fraud events;

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Corporate governance							
OWN	0.002						
	(0.001)						
PCT_1		0.004					
		(0.005)					
PCT_2		0.015**					
		(0.006)					
DUAL			0.003				
			(0.002)				
INDEP				-0.008			
				(0.008)			
BOARDSIZE					0.001		
					(0.003)		
MEET						0.000	
						(0.000)	
BIG							0.003**
							(0.001)
Control variables							

$LEVERAGE_{t-1}$	-0.009**	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***	-0.009***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
SIZE	0.003***	0.003***	0.003***	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.001	0.001	-0.000	-0.000	-0.000	-0.000	-0.001
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
$CAR_{scandal}$	0.071***	0.070***	0.071***	0.069***	0.070***	0.070***	0.072***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Constant	-0.035**	-0.063***	-0.055***	-0.052***	-0.055***	-0.054***	-0.035**
	(0.015)	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Year dummies	YES	YES	YES	YES	YES	YES	YES
Obs.	5516	5399	5399	5399	5399	5399	5516
Adj.R2	0.025	0.025	0.025	0.024	0.024	0.024	0.025

Panel C: for non-financial fraud events;

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Corporate governance							
OWN	-0.004**						
	(0.002)						
PCT_1		0.002					
		(0.006)					

PCT_2		0.009					
		(0.007)					
DUAL			-0.005**				
			(0.002)				
INDEP				0.001			
				(0.011)			
BOARDSIZE					-0.001		
					(0.003)		
MEET						-0.000	
						(0.000)	
BIG							0.001
							(0.002)
Control variables							
$LEVERAGE_{t-1}$	-0.005	-0.003	-0.003	-0.003	-0.003	-0.003	-0.004
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
SIZE	0.002***	0.002***	0.002**	0.002**	0.002***	0.002**	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.009*	-0.011**	-0.011**	-0.011**	-0.011**	-0.011**	-0.010**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
CARscandal	0.011	0.001	0.002	0.001	0.001	0.001	0.005
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)

Constant	-0.044**	-0.045***	-0.038**	-0.039**	-0.038**	-0.039**	-0.039**
	(0.018)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.018)
Year dummies	YES	YES	YES	YES	YES	YES	YES
Obs.	4456	4262	4262	4262	4262	4262	4456
Adj.R2	0.014	0.014	0.014	0.013	0.013	0.013	0.013

Table 6: OLS Regression of Industry Portfolio CARs around the Announcements of Scandals: Competition

Table 5 provides the results of cross-sectional regress test of the influence of industry competition on contagion stock returns. CAR_{peer} is five-day announcement cumulative abnormal stock returns for non-scandal peer firms. HHI is computed as the sum of the squares of the market shares of the firms in the industry, where market share is defined as firm sales divided by total industry sales. DIFF is calculated as sales divided by operating cost at industry level. MKTSIZE is negative of the log-transformed industry sales at the industry level. ENTRYCOST is computed as the weighted average gross value of the cost of property, plant and equipment for firms at the industry level, weighted by each firm's market share in this industry. $LEVERAGE_{t-1}$ is calculated as total liabilities divided by total assets in prior year. SIZE is Log of total assets. CORRELATION is measured as Pearson correlation between returns of a scandal firm and those of its rivals in the same industry during the period from 220 to 20 trading days before the disclosure date (-220, -20). $CAR_{scandal}$ is Five-day announcement cumulative abnormal returns for scandal firms. Huber/White/sandwich adjusted standard error are in brackets.* denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Panel A: for full corporate fraud events;

	(1)	(2)	(3)	(4)
Industry Competition				
HHI	0.026***			
	(0.007)			
DIFF		0.009*		
		(0.005)		
MKTSIZE			0.002***	
			(0.001)	
ENTRYCOST				0.001*
				(0.0007)
Control variables				
$LEVERAGE_{t-1}$	-0.007**	-0.008***	-0.007**	-0.007**
	(0.003)	(0.003)	(0.003)	(0.003)
SIZE	0.002***	0.002***	0.002***	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.006*	-0.005*	-0.005	-0.005*
	(0.003)	(0.003)	(0.003)	(0.003)
CARscandal	0.029***	0.029***	0.030***	0.028**
	(0.011)	(0.011)	(0.011)	(0.011)
Constant	-0.031***	-0.036***	0.005	-0.030***
	(0.012)	(0.012)	(0.017)	(0.012)
Year dummies	Yes	Yes	Yes	Yes
Obs.	9972	9972	9972	9972

Adj.R2	0.010	0.009	0.009	0.009

Panel B: for financial fraud events;

	(1)	(2)	(3)	(4)
Industry Competition				
HHI	0.014			
	(0.012)			
DIFF		0.025***		
		(0.008)		
MKTSIZE			-0.001	
			(0.001)	
ENTRYCOST				0.000
				(0.001)
Control variables				
$LEVERAGE_{t-1}$	-0.009**	-0.010***	-0.009***	-0.009**
	(0.003)	(0.003)	(0.003)	(0.003)
SIZE	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.001	-0.003	-0.001	-0.001
	(0.004)	(0.004)	(0.004)	(0.004)
CARscandal	0.074***	0.075***	0.071***	0.072***
	(0.018)	(0.018)	(0.018)	(0.018)
Constant	-0.036**	-0.051***	-0.061***	-0.036**
	(0.015)	(0.016)	(0.022)	(0.015)
Year dummies	YES	YES	YES	YES
Obs.	5516	5516	5516	5516
Adj.R2	0.025	0.026	0.025	0.024

Panel C: for non-financial fraud events;

	(1)	(2)	(3)	(4)
Industry Competition				
HHI	0.035***			
	(0.008)			
DIFF		-0.000		
		(0.007)		
MKTSIZE			0.006***	
			(0.001)	
ENTRYCOST				0.003***
				(0.001)
Control variables				
$LEVERAGE_{t-1}$	-0.003	-0.004	-0.002	-0.003

	(0.004)	(0.004)	(0.004)	(0.004)
SIZE	0.002**	0.002**	0.002***	0.002**
	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.011**	-0.010**	-0.010**	-0.011**
	(0.005)	(0.005)	(0.005)	(0.005)
CARscandal	0.003	0.005	0.012	0.005
	(0.014)	(0.014)	(0.014)	(0.014)
Constant	-0.041**	-0.039**	0.099***	-0.041**
	(0.018)	(0.019)	(0.027)	(0.018)
Year dummies	YES	YES	YES	YES
Obs.	4456	4456	4456	4456
Adj.R2	0.016	0.013	0.021	0.014

Table 7: OLS Regression of Industry Portfolio CARs around the Announcements of Scandals: Low Competition vs. High Competition Industries

Table 6 provides the results of cross-sectional regress test of the influence of corporate governance on contagion stock returns for low competition industries and high competition industries, respectively. CAR_{peer} is five-day announcement cumulative abnormal stock returns for non-scandal peer firms. OWN is dummy variable, equal to one if both scandal firm and non-scandal peer firm are SOEs, otherwise zero. PCT_1 is the percentage ownership by largest shareholder. PCT_2 is percentage ownership by second through tenth largest shareholders. DUAL is Dummy variable, equal to one if CEO and Chairman of the firms is same person, otherwise zero. INDEP is Independent director percentage, calculated as number of independent directors divided by number of total board directors. BOARDSIZE is Log of number of total board directors. MEET is Number of board meeting during the year. BIG is Dummy variable, equal to one if auditor of firm is big-ten auditor in China audit market, otherwise zero. $LEVERAGE_{t-1}$ is calculated as total liabilities divided by total assets in prior year. SIZE is Log of total assets. CORRELATION is measured as Pearson correlation between returns of a scandal firm and those of its rivals in the same industry during the period from 220 to 20 trading days before the disclosure date (-220, -20).$CAR_{scandal}$ is Five-day announcement cumulative abnormal returns for scandal firms. Huber/White/sandwich adjusted standard error are in brackets.* denotes significance at the 10% level, ** at the 5% level, and *** at the 1% level.

Panel A: Subsample in low competitive industries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Corporate governance							
OWN	-0.004**						
	(0.002)						
PCT_1		0.008					
		(0.006)					
PCT_2		0.016**					
		(0.008)					
DUAL			-0.001				
			(0.002)				
INDEP				-0.003			
				(0.011)			
BOARDSIZE					0.001		
					(0.003)		
MEET						-0.000	
						(0.000)	

BIG							-0.001
							(0.002)
Control variables							
LEVERAGEt-1	-0.007	-0.006	-0.007	-0.007	-0.007	-0.007	-0.006
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
SIZE	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.003	-0.004	-0.005	-0.004	-0.005	-0.005	-0.004
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
CARscandal	-0.013	-0.022	-0.021	-0.021	-0.021	-0.022	-0.017
	(0.022)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.022)
Constant	-0.074***	-0.077***	-0.069***	-0.070***	-0.071***	-0.070***	-0.068***
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	3353	3230	3230	3230	3230	3230	3353
Adj.R2	0.011	0.010	0.009	0.009	0.009	0.009	0.009

Panel B: Subsample in high competitive industries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Corporate governance							
OWN	-0.008***						
	(0.002)						
PCT_1		-0.004					
		(0.007)					
PCT_2		0.007					
		(0.008)					
DUAL			0.001				
			(0.003)				
INDEP				-0.015			
				(0.013)			
BOARDSIZE					0.000		
					(0.004)		
MEET						-0.000	
						(0.000)	
BIG							0.005***
							(0.002)

Control variables							
LEVERAGEt-1	-0.008*	-0.008*	-0.007	-0.008	-0.007	-0.007	-0.008*
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
SIZE	-0.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
CORRELATION	-0.006	-0.007	-0.008	-0.008	-0.008	-0.008	-0.009
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
CARscandal	0.093***	0.091***	0.091***	0.091***	0.091***	0.091***	0.092***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Constant	0.006	-0.026	-0.019	-0.014	-0.020	-0.017	0.011
	(0.021)	(0.023)	(0.022)	(0.022)	(0.022)	(0.022)	(0.021)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	3288	3222	3222	3222	3222	3222	3288
Adj.R2	0.024	0.021	0.020	0.021	0.020	0.021	0.022