Corruption and trust: evidence from stock market*

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Abstract
This paper examines the causal effect of corruption on generalized distrust by analyzing stock-price changes for intra-country peers in reaction to misconduct by a US-listed foreign firm. We find that investors react more negatively in the stock of the offending firm's intra-country peers when misconduct is committed by a foreign firm headquartered in a country that investors perceive as corrupt. Moreover, the effect of the perception of corruption on intra-country peer contagion is more pronounced for firms that are smaller in size, do not pay dividends, or are not monitored by a top-4 auditor, and less pronounced after the passage of the Sarbanes-Oxley Act (in 2002). These results suggest that investors are more likely to lose trust in firms from a country with a perceived high degree of corruption when confronted with a signal of cheating (i.e., misconduct) from that country.

Keywords: Perception of corruption, trust, intra-country peer contagion, spillovers

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1. Introduction

While trust has been widely used to interpret economic outcomes[1], the underlying forces shaping trust remain poorly understood. In this paper, we pay attention to one important factor damaging general trust between economic agents: corruption. Corruption erodes the credibility of legal enforcement, reduces the transparency of governance, deteriorates the fairness of the judicial system, and increases the likelihood of opportunistic activity (Anderson and Tverdova 2003; Levi, 1998; Misztal, 1996; Seligman, 1997; Uslaner, 2004; Rothstein and Stolle, 2008). All these consequences of corruption imply that people are less likely to trust each other. Despite the theoretical arguments, empirical evidence on the causal effect of corruption on trust is rare.

The main challenge to show the causal effect of corruption on trust (or distrust) is that trust and corruption are mutually determined (or coevolved: Uslaner, 2004; Aghion, Algan, Cahuc, and Shleifer, 2010). On one hand, people who have faith in others (i.e., trust) are more likely to endorse strong standards of moral and legal behaviors (Uslaner, 1999a, 1999b). On the other hand, people who believe that the legal system is fair and impartial (i.e., not corrupt) are more likely to trust each other (Rothstein, 2000). In the model of Aghion, Algan, Cahuc, and Shleifer (2010), people form their beliefs and trust based on their expectation of corruption, which will in turn shape actual regulation and corruption.

Identifying the effect of corruption on trust is important, as eroding trust might be one important channel through which corruption affects economic outcomes.[2] It might also emphasize the importance of improving country institutions fighting against corruption to

[1] See the literature on the role of trust in economic growth (La Porta, Lopez-De-Silanes, Shleifer, and Vishny, 1997; Knack and Keefer, 1997; Zak and Knack, 2001), international trade and investment (Guiso, Sapienza, and Zingales, 2009), financial development (Guiso, Sapienza, and Zingales, 2004, 2008), corporate financing and M&A transactions (Bottazzi, Da Rin, and Hellmann, 2011; Duarte, Siegel, and Young, 2010; Ahern, Daminielli, and Fracassi, 2015), and information processing (Pevzner, Xie, and Xin, 2015).

[2] See literature on the impact of corruption on economic growth (Mauro, 1995), international trade (Dutt and Traca, 2010), foreign direct investment (Wei, 2000), firm growth (Fisman and Svensson, 2007), the efficiency of credit allocation (Beck, Demirguc-Kunt, and Levine, 2006), and municipal bond financing (Butler, Fauver, and Mortal, 2009).

enhance mutual trust as more and more economic exchanges occur between formerly distant economic agents (Tabellini, 2008; Alesina and Giuliano, 2015).

We aim to pinpoint the causal role of corruption on trust by examining whether the perception of corruption matters to US investors in their valuation of foreign firms listed in the US. To "reveal" investors' generalized (dis)trust of foreign firms, we use spillovers to intra-country peers[3] from corporate misconduct by a foreign firm as our experiment: this is a situation in which investor mistrust of foreign firms is most likely to be manifested. If the perception of corruption matters, US investors might be more sensitive to corporate misconduct committed by firms domiciled in countries that are widely perceived to be corrupt, and therefore discount the valuations of such firms' intra-country peers by more.

The perception of corruption in foreign countries might influence US investors' trust in foreign firms for several reasons. First, perceptions of corruption may directly predict opportunistic behavior by foreign firms. A local culture of corruption might pervade both the public and private sectors, so that corruption is merely viewed as a common way of doing business (Bardhan, 1997; Rose-Ackerman, 1998; Fisman and Miguel, 2007). More importantly, rent-seeking incentives, secrecy, and disrespect (of rules) associated with a culture of corruption might encourage corporate insiders to take opportunistic and hidden actions to gain at the expense of other shareholders/stakeholders.[4] Therefore, US investors may retain a belief (or prior) that corporate misconduct, detected or not, is more prevalent among firms from countries with a high perception of corruption. US investors may then interpret a single instance of detected corporate misconduct as a signal consistent with their expectations of widespread opportunistic behavior among firms from corrupt countries, dissipating trust about such firms.

Second, in addition to affecting investors' priors or beliefs about being cheated, the perception of corruption could also cause mistrust in financial disclosures by a foreign firm. The rent-diversion incentives associated with corruption norms may induce a manager to

[3] The phrase "intra-country peers" refers to foreign firms listed in the U.S. that come from the same country as the offending firm.

[4] For example, Debacker et al., (2015) find that firms with owners from countries with greater corruption norms evade more taxes in the US.

manage earnings and obfuscate financial disclosure to mask expropriation and self-dealing (Fan and Wong, 2002; Leuz et al., 2003; Djankov et al., 2008). Furthermore, corruption is often associated with government-assisted shielding from market monitoring mechanisms (e.g. regulatory disclosure requirements, auditing, etc…), which allows managers of firms in countries with a high degree of corruption to enjoy more discretion over financial disclosure (Chen et al., 2010). Chen et al. (2010), for example, find that analysts experience greater difficulty in predicting the earnings of firms with political connections, and that this pattern is more profound in countries in which the corruption level is perceived to be high.[5] Liu (2015) reports that US firms with officers and directors that have ancestral backgrounds in more corrupt countries are more likely to engage in earnings management, fraud, insider trading, and so on. Taken together, such mistrust in financial disclosures is particularly acute when a signal of cheating appears, at which time US investors are more likely to incorporate mistrust into their valuation of intra-country peers. Thus, triggered by a single incident of misconduct, US investors are more likely to manifest mistrust about financial disclosures by firms from a corrupt foreign country into the valuations of *all* firms from that country.

Third, one might argue that such mistrust shouldn't be important if US law enforcement effectively deters corporate misconduct (Becker, 1968). However, despite the fact that all foreign-headquartered US-listed firms are subject to the governance of US security laws, the deterrent effect of US law enforcement (both civil and criminal) is highly dependent on the jurisdiction of the foreign firm's headquarters.[6] Therefore, the ability of firms from high corruption countries to escape legal enforcement and avoid external monitoring by bribing

[5] Also, Chaney et al. (2011) find that the financial reporting quality of politically connected firms is significantly lower than that of non-connected firms.

[6] One typical example is the Chinese company LDK Solar, which is registered in the Cayman Islands and traded on the New York Stock Exchange (NYSE), but actually maintains business in China. It articulates in Form F-1 filed with the SEC on May 31, 2007 as follows, "You will have limited ability to bring an action against us or against our directors and officers, or to enforce a judgment against us or them. We are incorporated in the Cayman Islands and conduct substantially all of our operations in China through our wholly owned subsidiary established in China. Most of our current directors and officers also reside outside the United States. Substantially all of our assets and the assets of those persons are located outside the United States. As a result, it may be difficult or impossible for you to bring an action against us or against these individuals in the United States, in the Cayman Islands or in China in the event that you believe that your rights have been infringed under the applicable securities laws or otherwise. Even if you are successful in bringing an action of this kind, the laws of the Cayman Islands and of China may render you unable to enforce a judgment against our assets or the assets of our directors and officers. For more information regarding the relevant laws of the Cayman Islands and China, see "Enforceability of Civil Liabilities" in this prospectus."

political authorities decreases trust in such firms and increases both the ex-ante cost of monitoring and ex-post cost of legal punishment in reaction to corporate misconduct. Cheng, Srinivasan, and Yu (2014), for example, document that firms from less judicially-efficient countries are less likely to be targeted in private securities litigation, and interpret judicial efficiency as a proxy for the cost of collecting information and detecting misconduct. In this regard, we argue that perceptions of corruption proxy for the probability of failure by (foreign or domestic) law enforcement to deter misconduct by foreign firms, and such failure makes US investors distrust firms from high corruption countries.

Summarizing these three factors, we anticipate that US investors are more sensitive to detection of alleged corporate misconduct committed by foreign firms headquartered in countries with a high perception of corruption. US investors are more likely to interpret an individual event of detected misconduct as a signal of widespread opportunistic behavior (or poor quality financial disclosure) by all intra-country peers when the offending firm is from a country with a high perception of corruption. Furthermore, considering the limitations of US law enforcement in deterring misconduct by firms from high corruption countries, US investors are more likely to lose trust in firms from that country following an incident of misconduct, and therefore discount by more the valuations of intra-country peers.

Our sample consists of 242 allegations of corporate misconduct committed by foreign firms from 29 countries. The discovery of corporate misconduct is identified from private security class action lawsuits from 1996 to 2011. We conduct a short-run event study for the intra-country peers of these event firms, centered on the dates when the corporate misconduct is revealed. To control for event-induced variance and cross-sectional clustering, we employ the modified *BMP t*-tests proposed by Kolari and Pynnonen (2010) at the individual firm level.

We find that foreign firms from the same country as the offending firms, but with shares listed on US exchanges, suffer significant falls in market capitalization when corporate misconduct by a same-country peer is revealed. On average, the firm-level cumulative abnormal return (CAR, hereafter below) between event day -1 and +1 relative to the date on which misconduct is detected (CAR [-1, +1]) is approximately -0.8%, significant at the 1%

level. This market value of equity loss of approximately US$2.6 million for a representative firm in our sample represents contagion (or a spillover) in the sense that, at least at face value, the affected firms have done nothing "wrong": their market values are being impaired because they are from the same country as a firm that has committed some misdeed.

Our main proxy for the perception of corruption at the country level is the corruption perception index from Transparency International. We sort our sample into two subsamples based on the median of the corruption perception index in the sample of 242 corporate misconduct events, and evaluate the statistical difference between event-induced average cumulative abnormal returns to intra-country peer firms in the high corruption perception subsample versus the low corruption perception subsample. Our results show that cumulative abnormal returns (centered on the date on which misconduct is detected) for intra-country peers in the high corruption perception subgroup are about 0.3% more negative than in the low corruption subgroup.

Furthermore, regression analysis shows that the corruption perception index significantly affects the event-induced cumulative abnormal returns to intra-country peer firms. Other things equal, a one standard deviation increase in the corruption perception index is associated with a 22 basis point decrease in the event-induced CAR for country-peer firms (relative to an unconditional average event CAR for country-peers of 75 basis points). These results are robust to controlling for firm characteristics, the severity of the misconduct event, the pre-event return correlation between the offending firm and its intra-country peers, and year-, industry-, and country-fixed effects.

To better understand our results, we also shed light on the interaction between the perception of corruption and various firm characteristics. If investors are more likely to lose trust in firms from countries with greater perceived corruption, the firms' (or their gatekeeper's) own characteristics might credibly signal firm quality, and therefore restore investor confidence. Employing dividend payout, and top 4 auditor (monitoring), and firm size as firm reputation factors, we show that the contagion effect is more pronounced in firms without dividend payouts and firms lacking monitoring by a top 4 auditor. Therefore, the contagion that we document is more tangible amongst firms that investors are naturally more

likely to lose trust in: more opaque firms that do not pay dividends and are not examined by a strong external monitor. We also investigate whether the heightening of US governance standards and enforcement mitigates the intra-country peer valuation spillovers associated with corruption. The Sarbanes-Oxley Act (SOX; 2002) aimed to restore investors' confidence in financial markets by establishing more stringent standards for internal controls, auditing, disclosure, and management conduct and accountability. Our results show that the effect of the perception of corruption on valuation contagion to intra-country peers is less pronounced after the passage of SOX.

We obtain qualitatively similar results using alternative measures of the perception of corruption. One is the control of corruption from the World Governance Indicators produced by the World Bank, while the other is the assessment of corruption measured by the International Country Risk Guide (ICRG). Both of these proxies lead to identical conclusions regarding the effect of the perception of corruption on the contagion to intra-country peers. We also demonstrate the robustness of our results to variation in our sample, by excluding intra-country peers that are either in the same industry as the offending firm or are themselves involved in misconduct-related litigation before the event to which they are matched, eliminating misconduct events that occur within 5 trading days of another event in the same country, and excluding all events (and the matched peers) involving firms based in China. None of our results are qualitatively affected by changing our sample in these ways.

In summary, by examining the relationship between the perception of corruption and the spillover (or contagion) to foreign firms' intra-country peers listed in the US market, we show that US investors are more sensitive to corporate misconduct committed by firms from countries with high perceptions of corruption. This spillover is exacerbated for intra-industry peers that are themselves more likely to be opaque or lack effective external monitoring. These results are consistent with the distrust of foreign firms from high corruption perception countries by US investors.

Our paper provides affirmative evidence on the causal effect of corruption on distrust. The co-evolvement between corruption and trust make it difficult to pinpoint the causal effect. In this paper, we empirically demonstrate the causal effect of corruption on mistrust by

"revealing" investors' distrust in intra-country peer spillover of corporate misconduct and examining the linkage between contagion value and perception of corruption of firms' home country. The findings therefore supports a series of theoretical arguments on the trust-eroding effect of corruption (Anderson and Tverdova 2003; Levi, 1998; Misztal, 1996; Seligman, 1997; Uslaner, 2004).

Our paper also contributes to the broader literature on the causes and consequences of corruption (e.g., Shleifer and Vishny, 1993; La Porta et al., 1997, 1998, 1999; Rose-Ackman, 1998, 1999; Triesman, 2000; Svensson, 2003, 2005; Barth et al., 2009).. The negative impact of corruption on economic growth has been well documented (Mauro, 1995, 1997; Dutt and Traca, 2010; Wei, 2000; Fisman and Svensson, 2007; Beck, Demirguc-Kunt, and Levine, 2006; Butler, Fauver, and Mortal, 2009), yet, the reasons on how corruption affects economic growth hasn't been well mentioned. Our paper's finding on the trust-eroding effect of corruption demonstrates the channel of damaging trust in interpreting the economic consequences of corruption. In addition, Fisman and Miguel (2007) and DeBacker and Heim (2015) find that local corruption norms predict opportunistic activity in foreign markets. By linking the perception of corruption to intra-country peer spillover (or contagion) effects, we confirm that US investors incorporate the inter-firm effects of corruption into firm valuation.

Our study also has important policy implications. Building or rebuilding trust has been recognized as important task for economic development.[7] Our paper hereby underlines the role of anti-corruption in building trust and support the initiatives to restore trust through anti-corruption.[8]

A byproduct of our study is that we document an intra-country peer contagion effect amongst firms, and thereby add to the literature studying spillovers between firms that are linked through industry, supply chain, boards, and so on (Lang and Stulz, 1992; Fich and Shivdasani, 2007; Gleason, Jenkins, and Johnson, 2008; Hertzel, Li, Officer, and Rodgers, 2008; Hertzel and Officer, 2012; Houston et al., 2015). Ours is not the first paper to

[7] See reference on rebuilding trust from OECD forum (http://www.oecd.org/forum/issues/rebuilding-trust.htm).
[8] See ADB-OECD Conference on fighting corruption and building trust in Asia and the Pacific (http://www.oecd.org/site/adboecdanti-corruptioninitiative/8thregionalanti-corruptionconferenceforasiaandthepacific.htm); 2015-16 G20 Anti-Corruption Implementation Plan (http://www.g20australia.org/official_resources/2015_16_g20_anti_corruption_implementation_plan).

document intra-country peer contagion related to the discovery of fraud or some other misdeed. In a contemporaneous paper, Darrough, Huang, and Zhao (2015) document significant spillovers to intra-country peers around the dates of revelations of fraud by Chinese firms that are listed in the US via reverse mergers. In contrast to that paper, however, our sample includes offending firms (and their peers) from many countries (including, but not limited to, China), and we examine the impact of the country-level perception of corruption on intra-country peer contagion.

The rest of the paper proceeds as follows. Section 2 explains our data construction and summary statistics. Section 3 contains our main event study results, while Section 4 shows regression results. In Section 5 we conclude.

2. Data and descriptive statistics

We obtain our base sample of events (revelations of corporate misconduct) from Stanford's Securities Class Action Clearinghouse (SCAC) database. The SCAC database consists of US firms that have a securities class action lawsuit filed against them (under the provisions of the federal 1934 Exchange Act) since 1996. As argued by Coffee (1986) and Choi, Nelson, and Pritchard (2009), an incident of corporate misconduct is less likely to be value relevant if it is not followed by a subsequent class action lawsuit being filed, thus this database is a powerful tool for identifying incidences of value-relevant misconduct.

Indeed, this dataset has been used recently to obtain samples of corporate misconduct in studies of corporate fraud (Dyck, Morse, and Zingales, 2010; Wang, Winton, and Yu, 2010). Since the purpose of our study is to identify intra-country spillover or contagion effects stemming from corporate misconduct, which has a broader scope than actual fraud, we do not screen the data for potentially frivolous lawsuits as is common in the fraud literature. We do, however, drop lawsuits concerning mutual fund timing and analyst malpractice, which have little to anything to do with the foreign corporation itself.

We gather stock price information from CRSP for the firms subject to litigation, and define foreign firms as those with two-digit share code beginning with 3 or ending with 2 (as in Gande and Miller, 2012). We then identify the foreign firm's country of incorporation

from the Compustat database or the incorporation dataset in SCAC, and all firm location information is checked by hand by reading the source litigation documents.[9] We drop events of litigation against firms located in Bermuda, because these firms are typically US-headquartered firms incorporated overseas for tax reasons.

As in Hertzel, Li, Officer, and Rodgers (2008), the lawsuit filing date itself is not the meaningful "event date" around which to measure stock price reactions to the events that lead to the filing of a class action lawsuit. By the time the lawsuit has been filed, the media has typically speculated about (and the market reacted to) corporate misconduct at the eventually sued firm. Thus, we develop our own procedure to identify the "revelation date" of corporate misconduct, and use these trigger events to look for spillover (or contagion) amongst intra-country peers.

Our identification is largely based on the documents produced by plaintiffs in the class action. Specifically, in class action litigation claims the plaintiff has to establish loss causation by establishing that "a defendant's material misrepresentation regarding a security traded in the open market that affects the price of the security [was] relied on by a plaintiff who purchased the security and suffered a loss."[10] This doctrine of "fraud on the market" is widely used in security class action lawsuits. In this regard, the plaintiff (or their lawyer) is the person who has the greatest motivation to investigate the trigger events that shock the market and induce a loss of value in the stock. Indeed, the litigation documents commonly first describe the misrepresentations by the defendant and subsequently demonstrate the plaintiff's loss associated with the drop of stock prices when the "truth" is revealed. Thus, we use as the trigger event the first event that results in a negative stock market reaction as described in the plaintiff's claim and used to demonstrate loss to the court. See Appendix 2 for an example. The date of this triggering event is the date that we assume that the financial misconduct is revealed to the market, and hence is the date around which we should observe intra-country peer contagion if it exists. Our final sample contains 242 misconduct events.

Table 1 presents abnormal returns for the 242 offending firms and the distribution of

[9] The incorporation dataset is kindly shared with us by Stanford's Security Class Action Clearinghouse (SCAC).
[10] See http://research.lawyers.com/glossary/fraud-on-the-market-theory.html.

those misconduct events. In Panel A we report abnormal returns around the trading day on which financial misconduct is revealed to the market. We follow the literature (e.g. Morck, Yeung and Yu, 2000) and estimate daily abnormal returns using two-factor market model containing the US market index and foreign firms' home country market index as the factors. Specifically, the estimation is as follows.

$$AR_{i,t} = R_{i,t} - \widehat{\alpha_i} + \widehat{\beta_i} R_{m,t} + \widehat{\gamma_i} R_{c,t} \quad (1)$$

Where $R_{i,t}$ is the daily stock return of firm *i* at time *t*. $R_{m,t}$ is the return to value weighted CRSP market index at time *t*, and $R_{c,t}$ is the return to the home-country market index of firm *i* at time *t*. The home-country market index is obtained from Datastream database.[11] For each firm in the sample, we estimate $\widehat{\alpha_i}$, $\widehat{\beta_i}$, and $\widehat{\gamma_i}$ in the OLS market model over the [-250, -50] window (where day 0 is the trading day on which financial misconduct is revealed to the market). As in Brown and Warner (1985), a security is only included in the sample if it has at least 30 daily return observations during the estimation window. Cumulative abnormal returns over the [-1,+1] event window are calculated as the sum of the daily abnormal returns over those three event days.[12]

On day 0, the trading day when the alleged misconduct is revealed to the market, the average abnormal return to the offending firms is -13.1%, statistically significant with a t-statistic of 11.38. There is a slight amount of anticipation of the misconduct (the average day -1 abnormal return is -1.08%, t-statistic of 2.63), but the size of the day 0 abnormal return indicates that the shock associated with the detection of misconduct is pronounced. The average abnormal return on day +1 is also very significant, -6.4% with t-statistic of 6.75. The average cumulative abnormal return over the [-1, +1] window is -20.3%, which equates to an

[11] We measure the home country market index using the MSCI country index denominated in US dollars. During our sample period, however, the MSCI country index in US dollars for Israel is unavailable. Instead, we use the local currency denominated MSCI Israel index. Also, there is no MSCI country index for Luxembourg so we use the Luxembourg Stock Exchange general index instead. Lastly, because no viable country index is available for Panama we change our two-factor model to a single-factor model based on CRSP value weighted index only for firms from that country.

[12] We treat all the three trading days abnormal returns as a whole sample and winsorize the top 5% and bottom 5% among this sample.

average abnormal loss of market capitalization of US$473.9 million.

[Insert Table 1 about here]

Panel B contains the country distribution: of the 242 misconduct events, the top five largest countries of origin are China (22.7%), Canada (21.9%), United Kingdom (9.5%), Israel (8.7%), and Switzerland (5.8%). Panel C describes the time series distribution of the misconduct events. 41 cases occurred in 2011, attributable to the intensive investigations of Chinese firms in that year. The revelation of misconduct events is also more frequent during the most recent financial crisis (2007 – 2009), consistent with the notion that it is more difficult to maintain fraudulent schemes during recessions. Panels D and E show the distributions of the trigger events and sources of disclosure, respectively. Definitions of the various terms are contained in Appendix 1. In Panel D, approximately 39 percent of misconduct revelations are triggered by revenue recognition. In Panel E, 139 trigger events are disclosed in press releases by the offending firm, while 29 cases are revealed via independent media coverage. In Panel F we see that about 30 percent of the misconduct events in our sample are accounting failures.[13]

3. Abnormal returns to intra-country peers

In this section, we examine the relation between the perception of corruption and the intra-country contagion related to misconduct by foreign firms. We first document an intra-country spillover effect and then explore the cross sectional differences in the spillover effect for countries with various corruption perception levels.

To obtain a list of foreign intra-country peers listed in the US with the same home-country as these firms subject to litigation, we first observe the firms' *current* geographic location from the Compustat database and further obtain their *historical*

[13] The SCAC categorizes corporate fraud into 34 types. We refine these 34 types into three types: accounting, non-accounting, and other. Accounting fraud is accounting misrepresentation and/or failure of disclosure. Non-accounting fraud is some other kind of (non-accounting) misrepresentation or the failure of a (non-accounting) disclosure. "Other" includes fraud related to IPOs, M&As, insider trading, and so on.

geographic location from SEC filings (following Pirinsky and Wang, 2006). As in Srinivasan, Wahid, and Yu (2015), we identify current firm location using the "loc" variable, instead of the "fic" variable, because "loc" captures firms' country of business operation more accurately (particularly when foreign firms are registered in the British Virgin Islands or Cayman Islands for tax reasons but largely conduct business in other countries). We access SEC filings using the AuditAnalytics dataset. Firms are included in the portfolios of intra-country peers if they are located in the same (non-US) country as one of the firms subject to a class action lawsuit on the misconduct revelation date.

If two (or more) foreign firms from the same country have the same trading day on which financial misconduct is revealed to the market (according to the data sources described above), we assign one misconduct event for that country-day for the intra-country peer contagion study. Furthermore, we use the event with the most negative cumulative abnormal returns in the [-1, +1] window to measure event-specific variables (described below). To isolate the noise coming from confounding individual firm-specific events, we exclude from our portfolios of intra-country peers any firms that within five trading days before or after the date on which financial misconduct (by the intra-country peer) is revealed to the market have the announcement of a dividend payout, merger and acquisition, or earnings, or are revealed to have themselves misled investors.

Finally, we drop observations with missing firm-specific or country-specific control variables (described below). This results in a sample of 16,606 foreign intra-country peers from 29 countries: on average, approximately 70 peer firms are affected by each misconduct event. Peer firms from some countries (e.g., China) are affected multiple times, and in our sample there are 1,322 unique intra-country peers.

We measure abnormal returns (to intra-country peer firms) as described above for the offending firms. The one consideration that applies to intra-country peers, but not to the measurement of returns to the offending firms themselves, is that some degree of cross-sectional correlation in abnormal returns across intra-country peers would be expected. As pointed out in Kolari and Pynnonen (2010), within group correlation caused by event-date clustering might lead to biased *t*-statistics. We therefore test statistical significance for

abnormal returns for intra-country peers using a modified version of the *BMP* test (from Boehmer, Musumeci, and Poulsen, 1991) as proposed by Kolari and Pynnonen (2010) at the firm level. The advantage of the adjusted *BMP* (*ADJ-BMP*, hereafter below) methodology is that it accounts for the event-date clustering without losing firm specific information.

3.1. Intra-country spillover/contagion

Table 2 shows the market reactions of the intra-country peers of the offending firms around the misconduct detection event day (event day 0). In Panel A, we form portfolios of intra-country peers for each of the 242 misconduct events and report average abnormal returns for those portfolios. The results indicate a strong intra-country spillover effect. On day 0 (the trading day on which the misconduct is revealed to the market), the average abnormal return for the intra-country peer portfolio is -0.24% with a *t*-statistic of 3.9. On day +1, the mean of the abnormal returns is -0.21% with *t*-value of 2.3. The average CAR from day -1 to +1 for the intra-country peer portfolios is a significantly negative -0.37% (*t*-statistic of 3.3), which translates into a loss of market value of US$492.8 million in the average event-peer portfolio. Thus, there appears to be a significant negative wealth effect on portfolios of intra-country peers stemming from corporate misconduct by foreign firms.

[Insert Table 2 about here]

In Panel B, we document this intra-country contagion at *firm* level with *ADJ-BMP* tests. Since we hypothesize that firm characteristics (such as opacity) will exacerbate or mute the contagion experienced by a given intra-country peer, many of the important tests in this paper use firm-specific abnormal returns (as opposed to event-portfolio returns) as the dependent variable to be explained by firm-specific characteristics. The mean firm-specific abnormal return on event day 0 (+1) is -0.37% (-0.27%) with *t*-statistic of 6.1 (4.4), again suggestive of intra-country contagion (or spillovers). The average CAR[-1, +1] is -0.75% with *t*-statistic of 7.1, which represents a market value loss of US$2.6 million for the typical intra-country peer.

In unreported results, we perform several robust tests.[14] The first is to remove intra-country peer firms in the same industry (i.e., with the same three digits SIC code) as their matched offending firm, to mitigate the concern that the contagion we document might be driven by an industry spillover effect (as in Lang and Stulz, 1992). Our results are qualitatively unaffected, suggesting that the effect we document is not related to industry spillovers (and that country-contagion dominates industry-contagion).

Second, we eliminate partially overlapping misconduct events. For 17 of the 242 misconduct events in our sample there are fewer than 5 trading days between events affecting peer firms from the same country, and we exclude the latter of the partially overlapping misconduct events and re-estimate our contagion results. Lastly, intra-country peers that are themselves involved in lawsuits might drive the spillovers that we observe. We mitigate this concern by excluding from our analysis all peer firms that have been involved in a lawsuit (from our database) before the misconduct event to which they are matched. All the robustness tests described above show negative spillover effects significant at the 1% level, for both portfolio-level (*BMP*) and firm-level (*ADJ-BMP*) tests. Furthermore, imposing all these robustness conditions at the same time leads to the same conclusion.

Overall, employing portfolio-level *BMP* tests or firm-level *ADJ-BMP* tests, we document robust statistically and economically significant intra-country contagion around the date when misconduct by foreign firms is revealed.

3.2. The perception of corruption

To examine the impact of the *perception* of corruption on intra-country peer contagion, we sort our sample by corruption perception scores, and divide it into two groups. The primary perception of corruption measure that we use is the corruption perception index (CPI) from Transparency International. This measure has been used in Fisman and Miguel (2007) and DeBacker, Heim, and Tran (2015). We calculate the corruption perception measure as 10 minus the original index so that higher values indicate a higher perceived level of corruption.

We present our results for cumulative abnormal returns at both the portfolio and

[14] All results are available from the authors by request.

firm-specific level, as in Section 3.1. Furthermore, to test whether the effect of the perception of corruption on contagion varies with firm characteristics, we employ two-way sorts (corruption perception and firm characteristics) at the firm level and for contagion effects in the different subsamples. Table 3 reports our findings.

[Insert Table 3 about here]

Panel A of Table 3 displays the results at the portfolio level. We sort the sample of event portfolios into two groups (above- and below-median) based on the perception of corruption for the countries containing the offending firm for each of the 242 misconduct events. We run *BMP* tests for each subsample to ascertain whether the average cumulative abnormal returns are significantly different from zero. We also report the median portfolio CAR in each subsample, in case the averages are skewed by outliers. The intra-country peer contagion exists only in the subsample of events involving firms from countries with high corruption perception. Specifically, the mean portfolio cumulative abnormal return in the high corruption subsample is -0.72%, significant at the 1% level. By contrast, the mean portfolio cumulative abnormal return is not statistically different from zero in the low corruption subsample. The mean difference between event-portfolio returns in the subsamples with high and low perception of corruption is 0.68% (significant at the 5% level). The median difference is 0.31%, also statistically significant at conventional levels.

Panel B of Table 3 contains the same sorting as in Panel A, but using the firm-level sample (i.e., all intra-country peers for all events are grouped together). For each subsample based on the perception of corruption, we employ *ADJ-BMP* tests to examine whether the mean firm-specific cumulative abnormal return is significantly different from zero. The CAR [-1, +1] in the high corruption group is -0.92% with *t* value 6.02. By contrast, it is -0.61% in the low corruption group. Moreover, the median firm-specific cumulative abnormal return is -0.76% in the high corruption perception group compared to -0.49% in the low corruption perception group. With a high degree of statistical significance, both the mean and the median firm-specific cumulative abnormal return is lower (i.e., more negative) for peer firms

in high corruption-perception countries than in low corruption-perception countries.

Our results indicate that US investors are more sensitive to corporate misdeeds by firms from high corruption perception countries. To further enhance our understanding of this corruption-perception effect, we examine how firm-specific factors affect the magnification or mitigation of the contagion we document. If US investors are more likely to lose trust in intra-country peer firms when the offending firm is from a country with high perception of corruption, we anticipate that attributes which positively reinforce the reputation of a firm could credibly signal firm quality and therefore mitigate the corruption-perception effect. Along these lines, we expect that corruption-perception driven contagion will be more muted for intra-country peers that are dividend payers, monitored by a top-four auditor, or larger in size (using total assets). We sort the sample of peers into groups (above- and below-median; or yes vs. no) based on these characteristics (independently), and repeat the tests in Panel B for each subsample. Panel C of Table 3 shows the results.

We find that contagion to intra-country peers is significantly greater (i.e., more negative CARs) for high corruption-perception countries only in the subsample of non-dividend-paying peers (difference in mean CARs for high- vs. low-corruption perception: 0.28, statistically significant at the 1% level) and in the subsample of peers that are *not* monitored by a top-four auditor (difference in mean CARs for high- vs. low-corruption perception: 0.62, statistically significant at the 1% level). This applies both using means and medians, and therefore is unlikely to be driven by outliers. Thus, our hypothesis that corruption-perception contagion is less pronounced for peer firms that buttress their reputation by paying dividend and employing a top-four auditor is strongly supported based on these double-sort tests.

We find that mean difference in CARs between high-corruption and low-corruption countries is statistically significant for both size groups (smaller- and larger-than-median) in Panel C, suggesting only weak support for the corruption-based contagion hypothesis using size as a proxy for firm reputation (or credibility).

Overall, by performing comparison in high- and low-corruption perception countries, we find that intra-country peer contagion is significantly greater in countries with a higher

perception of corruption. This likely indicates that investors are more sensitive to, or more likely to lose trust, if misdeeds are committed by firms from high-corruption perception countries. Through double-sort tests, we also obtain strong evidence that this contagion effect mainly exists for peers with weaker reputations (or credibility) in capital markets: those that are non-dividend payers and those that do not engage a top-four auditor to monitor them.

4. Multivariate analysis

In this section, we conduct multivariate regression analysis using firm-level data to explain peer CARs around the misconduct detection event day. As in the univariate tests, we use cumulative abnormal return in the [-1, +1] event window, and estimated from a two-factor market model, as our dependent variable. We control for firm characteristics including firm size, leverage, market-to-book ratio, and profitability. Event-level control variables include pre-event correlation between the equity returns for peer firms and the offending firm, and pre-event standard deviation of peer firm equity returns. We also control for the degree of event severity (measured by the offending firms' cumulative abnormal return at [-1, +1]) and country-level factors such as GDP per capita, stock market development (measured by the market value of stocks traded divided by GDP), and law enforcement.

To mitigate the concern that unobserved institutional factors drive our results, we control for a mean index of five remaining institutional governance measures from the World Governance Indicators. We also control for the cultural distance (from the World Value Survey) and the geographic distance between the US and the foreign firms' headquarter countries. Our regressions have a variety of year-, industry-, region-, and country-fixed effects. Industries are classified using each firm's two-digit SIC code, and regions are categorized using data from the World Development Indicators). We report standard errors clustered at country level.

Our measure of the perception of corruption is the corruption perception index (CPI) described above. In robustness tests, we also use alternative measures to assess the generalizability of our results. One alternative measure we use is the control of corruption

indicator from the World Governance Indicators produced by the World Bank. Another alternative measure we employ is the assessment of corruption from the International Country Risk Guide (ICRG). All these measures are inverted from the original data so that high values indicate a high level of the perception of corruption. See Appendix 3 for detailed variable definitions.

[Insert Table 4 about here]

Table 4 reports summary statistics for our firm-, event-, and country-level variables. For the dependent variable in our regressions, CAR [-1, +1], we also show the within-country and between-country standard deviation.[15] The within-country standard deviation of CAR [-1, +1] (%) is 4.05 and the between-country standard deviation is 2.20. The large within-country standard deviation suggests the importance of controlling for firm-specific variables in explaining the variation in cumulative abnormal returns in firm-level regressions.

4.1. Baseline regressions

In this subsection, we examine the link between intra-country peer contagion and the country-level perception of corruption in multivariate regressions using firm-level data. Table 5 shows the results.

[Insert Table 5 about here]

Column 1 contains year- and industry-fixed effects, and contains only firm- and event-level control variables (i.e., no country-level controls). Columns 2 – 7 add country-level control variables, while in columns 8 and 9 unobserved country-level variation is controlled for using country-level fixed effects (which make the region-level fixed effects

[15] For between country standard deviation, we first calculate the mean of CAR[-1,+1] for all peer firms across events from the same country, and then calculate the standard deviation of those country-means across countries. For within country standard deviation, we first calculate the standard deviation of CAR[-1,+1] for all peer firms across events from the same country. We then calculate the average of those country-level standard deviations.

redundant).

In all columns, we find that the perception of corruption is significantly negatively related to intra-country peer contagion. In other words, peer firms from countries with a higher perception of corruption suffer more negative cumulative abnormal returns around the event day on which alleged misconduct by one of their same-country peers is detected/announced. Using the coefficient in column 9 (our regression that includes the most comprehensive controls), for example, all else equal a one standard deviation increase in the perception of corruption is associated with intra-country peer CAR[-1, +1] being lower by 22 basis points, and this effect is statistically significant at the 1% level. Given that the unconditional average intra-country peer CAR[-1, +1] is 75 basis points (Table 2, Panel A), this is also an economically significant finding.

For other control variables, the coefficient on firm assets is significantly positive at the 10% significance level, suggesting that larger peer firms are less likely to be negatively affected by a same-country peer's misconduct. We also show that contagion is magnified by the severity of the misconduct event (proxied by the cumulative abnormal return in the [-1, +1] window for the offending firm itself). This holds even controlling for pre-event correlation between the firms' returns, which itself also exacerbates intra-country peer contagion (higher correlation between the offending firm and intra-country peer is associated with more negative CAR[-1,+1] for that peer). The coefficient on the standard deviation variable is also significantly negative, suggesting that higher-risk peer firms tend to suffer greater contagion when the peer's misconduct is revealed. We also find that contagion is intensified by country wealth, as measured by (the log of) GDP per capita in columns 2 – 7 (but not so in column 9 where we control for country fixed-effects). This suggests that corporate misconduct is a larger negative shock for intra-country peers from richer nations.

4.2. Interaction with firm-specific reputation factors

The results in Table 5 show a significant influence of corruption perception on contagion, and suggest that US investors are more likely to lose confidence in firms headquartered in countries with a high perception of corruption. To further understand these

results, we interact the corruption perception variable with firm-specific variables designed to measure the peer's reputation with capital markets. A firm's (or auditor's) reputation with the capital markets potentially mitigates the erosion in confidence in that peer firm. We employ firm size (assets), dividend payouts, and monitoring by a top-four auditor as reputation factors, and anticipate that the effect of corruption perception on contagion will be smaller (i.e., less negative) for more reputable peers (those larger in size, that pay dividends, or that employ a top-four auditor). Table 6 reports the results.

[Insert Table 6 about here]

We control year-, industry-, and country- fixed effects as we did in columns 8 and 9 in Table 5. In case that the interaction effect between corruption and firm-specific reputation factors is driven by country variation with year effects, we further control a group of interaction indicators between year- and country- fixed effects in column 3, column 6, and column 9. As anticipated, we find that effect of corruption perception on intra-country-peer contagion is mitigated by firm size (columns 1, 2 and 3) monitoring by a top-four auditor (columns 4, 5 and 6), and the payment of dividends (columns 7, 8 and 9). The coefficients on the interaction terms are mostly statistically significant at the 1% level (except for one, which is statistically significant at the 5% level). Therefore, we conclude that factors that burnish a firm's reputation with capital markets also blunt the effect of country-association contagion when a same-country peer is alleged to have misled investors in some way.

4.3. Interaction with the Sarbanes-Oxley Act

As argued in this paper, US investors are more likely to lose trust in firms from corrupt countries because corporate misconduct committed by firms from countries with a high perception of corruption is less likely to be effectively detected and punished. In 2002, to restore investors' confidence in financial markets, the US government enacted the Sarbanes-Oxley Act (SOX). SOX heightens securities law enforcement by establishing more stringent standards for internal controls, auditing, disclosure, and management conduct and

accountability. We therefore expect that the effect of the perception of corruption on valuation contagion to intra-country peers will be less pronounced after passage of SOX. We add an interaction term between a post-SOX indicator (equal to one for years on and after 2002, and zero otherwise) and the perception of corruption into our regressions and report the results in Table 7.

[Insert Table 7 about here]

The regressions in Table 7 are similar to those in Table 5, except for the addition of the interaction term between the perception of corruption and the post-SOX indicator. We find that in almost all our empirical models the effect of the perception of corruption on valuation contagion to intra-country peers is significantly mitigated after the enactment of SOX. The coefficients on the interaction terms are all significantly positive (except in column 1, which is positive but not significant). As an example, in column 9 the coefficient on the interaction term is 0.24 (significant at the 1% level), which partially offsets the contagion observed for intra-country peers in more corrupt countries (coefficient on the raw perception of corruption in the first row is -0.60, also significant at the 1% level). These results suggest that strengthening law enforcement does something to (at least partially) restore investors' confidence in firms from countries with a higher perception of corruption.

4.4. Alternative proxies for the perception of corruption

In this section we use alternative measures to proxy for the perception of corruption, to demonstrate that our results are not dependent on the particular measure of the perception of corruption employed earlier in the paper. The first alternative measure we employ is the control of corruption from World Governance Indicators produced by the World Bank. The second is the assessment of corruption in the International Country Risk Guide (ICRG). Table 8 reports the results, using the control of corruption measure in columns 1 – 5 and the ICRG measure in columns 6 – 10.

[Insert Table 8 about here]

The regressions have similar structure to those in Tables 5 and 6: the first regressions in each set (columns 1 and 6) contain only firm-specific variables, the next two regressions in each set (columns 2 – 3 and 7 – 8) add country-level control variables, while the final regressions in each set (columns 4 – 5 and 9 – 10) control for unobserved country-level variation using country-level fixed effects.

All these regressions show significantly negative effects of the perception of corruption on intra-country peer contagion, with at least 5% significance (and most of the coefficients of interest are significant at the 1% level). Broadly, increased perceived corruption in a country, no matter how we proxy for it, exacerbates peer contagion in response to an adverse signal from a firm from the same country (i.e., misconduct). Using the corruption-contagion coefficient in column 10, for example (since this is one of the regressions that contains the most comprehensive controls), a one standard deviation increase in the corruption proxy is associated with 16 basis points lower peer CARs around the misconduct detection announcement date. Again, given that the unconditional average intra-country peer CAR[-1, +1] is 75 basis points (Table 2, Panel A), this is an economically significant finding in addition to being statistically significant at the 1% level.

4.4. Additional robustness checks

We conduct a variety of (untabulated) robustness tests varying our sample to demonstrate that our results are not driven by certain subsets of observations. First variation we remove intra-country peer firms with the same three digits SIC industry code as their matched offending firm, to mitigate the concern that the contagion we document, and its relation to perceived corruption, might be driven by an industry spillover effect (as in Lang and Stulz, 1992). Second, we eliminate partially overlapping misconduct events (described above in Section 3.1.), and re-estimate our corruption-contagion results. Third, we exclude from the sample those intra-country peers that are themselves involved in lawsuits before the misconduct event.

Finally, we use a sample that excludes offending firms (and their matched peers) from China. Since China is the country in our sample with the greatest concentration of misconduct events (Table 1, Panel B; although Canada is a close second), and firms from China have been in the news a lot recently for various incidents of alleged misconduct[16], we want to establish the generalizability of our results by demonstrating that the results hold even when observations from China are excluded from the sample.

For all four of the robustness tests outlined above, our principal results are qualitatively unaffected. Specifically, if we (independently) exclude same-industry peers, peers that are themselves the subject of litigation, or exclude events that either involve Chinese firms or are too close in time to other events from the same country, we continue to find that the perception of corruption (using all three proxies) is significantly negatively related to intra-country peer contagion measured using CAR[-1,+1]. These results are available from the authors by request.

5. Conclusions

Globalization underlines the importance of institutional quality and generalized morality as more and more economic activities are conducted between agents that are geographically distant (Alesina and Giuliano, 2015). In this paper, we examine whether the perception of corruption matters to investors in their trust in, and valuation of, US-listed foreign firms. We focus on intra-country peer contagion (or spillovers) around the detection of alleged corporate misconduct by a firm from that country, as this is a situation in which US investor mistrust of foreign firms is most likely to be an important determinant of valuation *and* affected by the perceived corruption in that foreign country.

We find that investors discount the valuations of intra-country peers by *more* when a firm from a country with a high perception of corruption is alleged to have been involved in misconduct (versus for peers from countries for which the perception of corruption is low). These results hold controlling for a variety of home-country control variables, and are more

[16] For example, see: http://dealbook.nytimes.com/2014/09/10/short-seller-carson-block-says-hes-wary-of-alibaba/?_r=0

pronounced in peers that would arguably have a questionable reputation with US capital markets (smaller firms, and those that do not pay dividends or do not employ a top-four auditor). Furthermore, our results survive a variety of robustness tests, both using alternate proxies for the perception of corruption and excluding various groups of peers (such as those from China) from our sample completely.

Our results suggest that US investors are more likely to lose trust in firms from a country with a high perception of corruption when (alleged) corporate misdeeds by a peer from that country are revealed. Such a loss of trust is potentially devastating for economic growth (Mauro, 1995), international trade (Dutt and Traca, 2010), and foreign direct investment (Wei, 2000) in (or with) the foreign country.

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Table 1. Misconduct events by foreign firms

This table presents the abnormal returns and distribution of misconduct events (revealed in class action litigation filings) by non-US firms with shares listed in the US. Panel A documents the abnormal returns. AR(%)/CAR(%) is the mean value (in percent) of daily abnormal returns (AR) or cumulative abnormal returns (CAR) over the indicated window centered on the trading day on which financial misconduct is revealed to the market (according to the class action filing). T-test is the value of the *ADJ-BMP* test adjusted for event-induced variance and event clustering, based on Kolari and Pynnonen (2010). Mean dollar return is the mean dollar value of the return to shareholders of offending firms around the misconduct revelation date (in $ millions). N denotes the number of observations. Panels B through F document the distribution of the miscount events, and Percent denotes the percentage among the total of 242 misconduct events in our sample.

Panel A. Abnormal returns for offending firms (*N=242*)

Event days	AR(%)/CAR(%)	T-test	Mean dollar return
-1	-1.075***	[2.632]	-$36.310
0	-13.087***	[11.379]	-$247.682
+1	-6.377***	[6.747]	-$199.044
[-1, +1]	-20.291***	[13.705]	-$473.908

Panel B. By country

Country	N	Percent
Argentina	2	0.83
Belgium	4	1.65
Brazil	1	0.41
Canada	53	21.90
China	55	22.73
Finland	1	0.41
France	9	3.72
Germany	9	3.72
Greece	4	1.65
Hong Kong	2	0.83
India	3	1.24
Indonesia	1	0.41
Ireland	8	3.31
Israel	21	8.68
Italy	1	0.41
Japan	2	0.83
Luxembourg	2	0.83
Mexico	2	0.83
Netherlands	11	4.55
Panama	2	0.83
Philippines	1	0.41
Russia	2	0.83
Singapore	2	0.83
South Africa	2	0.83
South Korea	1	0.41
Spain	3	1.24
Sweden	1	0.41
Switzerland	14	5.79
United Kingdom	23	9.50
Total	242	100.00

Panel C. By year

Year	N	Percent
1996	6	2.48
1997	4	1.65
1998	17	7.02
1999	6	2.48
2000	20	8.26
2001	12	4.96
2002	15	6.20
2003	12	4.96
2004	17	7.02
2005	13	5.37
2006	9	3.72
2007	19	7.85
2008	21	8.68
2009	11	4.55
2010	19	7.85
2011	41	16.94
Total	242	100.00

Panel D. By trigger event

	N	Percent
Merger and acquisition or IPO	18	7.44
Executive departure	6	2.48
Investigation	22	9.09
Operations	37	15.29
Restatements	7	2.89
Revenue recognition	95	39.26
Other	57	23.55
Total	242	100.00

Panel E. By source of disclosure

	N	Percent
SEC filing	8	3.31
Gate keeper	15	6.20
Media coverage	29	11.98
Press release	139	57.44
Special report	18	7.44
Other	33	13.64
Total	242	100.00

Panel F. By type

	N	Percent
Accounting	73	30.17
Non accounting	88	36.36
Other	81	33.47
Total	242	100.00

Table 2. Abnormal returns for intra-country peers

This table presents abnormal returns in the stocks of foreign firms with shares listed in the US around the detection of misconduct by an intra-country peer. AR(%)/CAR(%) is the mean value (in percent) of daily abnormal returns (AR) or cumulative abnormal returns (CAR) over the indicated window centered on the trading day on which such misconduct is revealed to the market. Panel A reports AR(%)/CAR(%) at the portfolio level, in which we form a portfolio of intra-country peers for each of the 242 misconduct events. Panel B reports AR(%)/CAR(%) at the firm level, where we pool all intra-country peers together for all misconduct events. The *t*-test in panel A is the value of *BMP* test adjusted for event induced variance, as in Boehmer, Musumeci, and Poulsen (1991). The *t*-test in panel B is the value of the *ADJ-BMP* test adjusted for event-induced variance and event clustering, as in Kolari and Pynnonen (2010). Mean dollar return is the average dollar return (in millions) to intra-country portfolios or intra-country peers around the misconduct revelation date. *, **, and *** denote significance at the 10%, 5%, or 1% level using two-sided *t*-tests with the null hypothesis that the mean abnormal return or mean cumulative abnormal return is equal to 0.

Panel A: Portfolio level (*N=242*)

Event days	AR(%)/CAR(%)	*t*-test	Mean dollar return
-1	0.076	[0.205]	$32.606
0	-0.235***	[3.913]	-$251.583
+1	-0.206**	[2.302]	-$273.834
[-1, +1]	-0.366***	[3.313]	-$492.811

Panel B: Firm level (*N=16,606*)

Event days	AR(%)/CAR(%)	T-test	Mean dollar return
-1	-0.116	[1.393]	$0.578
0	-0.370***	[6.135]	-$1.946
+1	-0.265***	[4.365]	-$1.215
[-1, +1]	-0.750***	[7.065]	-$2.582

Table 3. Market reactions for intra-country peers and the perception of corruption

Panel A presents portfolio-level mean and median cumulative abnormal returns (CAR [-1, +1]) for groups sorted by the country-level perception of corruption. Day 0 is the trading day on which such misconduct is revealed to the market. Panel B presents firm-level mean and median cumulative abnormal returns (CAR [-1, +1]) for groups sorted by the country-level perception of corruption. Panel C reports the firm-level mean and median cumulative abnormal returns sorted by corruption perception and firm-specific reputation factors. We measure the perception of corruption (High corruption vs. Low corruption) using corruption perception index published by Transparency International. N denotes the number of observations. T-test denotes the *t*-statistic from *BMP* tests as in Boehmer, Musumeci, and Poulsen (1991) at the portfolio level (Panel A) or the *t*-statistic from *ADJ-BMP* tests as in Kolari and Pynnonen (2010) at the firm level (Panel B and Panel C). Difference denotes the difference in means or medians between the two sub-groups (Low – High). The *t*-statistics for the difference in means (assuming unequal variances) are reported below the estimates. The Wilcoxon statistics for the difference in medians are reported below the estimates. *, **, and *** denote the significance of 10%, 5%, or 1% using two-sided *t*-tests with the null hypothesis that mean value or median value is equal to 0.

Panel A. Perception of corruption (portfolio)

Group	N	Mean (%)	T-test	Median (%)
High corruption	116	-0.721***	[3.602]	-0.615
Low corruption	126	-0.038	[1.118]	-0.305
Difference		0.683**		0.310**
		[2.100]		[2.298]

Panel B. Perception of corruption (firm -level)

Group	N	Mean (%)	T-test	Median (%)
High corruption	7408	-0.921***	[6.017]	-0.761
Low corruption	9198	-0.613***	[4.179]	-0.491
Difference		0.308***		0.270***
		[3.948]		[4.023]

Panel C. Perception of corruption and reputation factors

Group	N	Mean (%)	T-test	Median (%)	N	Mean (%)	T-test	Median (%)
	Non dividend payers				Dividend payers			
High corruption	6104	-1.045***	[6.726]	-0.891	1304	-0.340	[1.046]	-0.219
Low corruption	6245	-0.769***	[4.761]	-0.726	2953	-0.281*	[1.833]	-0.204
Difference		0.276***		0.165**		0.059		0.015
		[2.845]		[2.525]		[0.465]		[0.573]
	Non top-4 auditor				Top-4 auditor			
High corruption	3588	-1.307***	[7.141]	-1.123	3820	-0.559***	[3.302]	-0.440
Low corruption	4544	-0.685***	[3.785]	-0.558	4654	-0.543***	[3.404]	-0.420
Difference		0.622***		0.565***		0.017		0.020
		[5.233]		[5.580]		[0.162]		[0.135]
	Small size				Large size			
High corruption	3673	-1.221***	[7.728]	-0.974	3735	-0.626***	[3.400]	-0.552
Low corruption	4562	-0.871***	[5.170]	-0.797	4636	-0.359***	[2.716]	-0.300
Difference		0.350***		0.177**		0.267***		0.252***
		[2.855]		[2.363]		[2.761]		[3.294]

Table 4. Cross-sectional descriptive statistics

This table presents summary statistics for the dependent and control variables that we will use in our regressions. N denotes the number of observations. Mean denotes the average. Sd denotes the standard deviation. Min denotes the minimum value and Max denotes the maximum value. CAR [-1, +1] is the cumulative abnormal return for intra-country peers of firms that are alleged to have committed financial misconduct (day 0 is the trading day on which such misconduct is revealed to the market). See Appendix 3 for other variable definitions.

	N	Mean	Min	Max	Sd
CAR[-1, +1] (%)	16606	-0.750	-19.863	19.131	5.003
					2.202 (Between)
					4.054 (Within)
Perception of corruption	16606	3.309	0.300	8.100	2.466
Control of corruption (World Bank)	16606	2.009	0.472	4.047	1.273
Corruption (ICRG)	16606	2.153	0.000	5.000	1.578
Log of GDP per capita	16606	9.504	6.327	11.189	1.164
Stock value/GDP	16606	92.325	0.484	433.315	45.103
Institution	16606	0.685	-0.735	1.878	0.983
Log of distance	16606	7.885	6.307	9.692	1.426
Cultural distance	16596	1.747	0.383	3.437	1.245
Public enforcement	16606	0.542	0.000	1.000	0.492
Log of assets	16606	6.056	2.733	10.344	2.112
Market to Book	16606	1.639	0.523	5.064	1.156
Leverage	16606	0.179	0.000	0.569	0.182
Profitability	16606	0.048	-0.367	0.259	0.150
Top 4 auditor	16606	0.510	0.000	1.000	0.500
Dividend payers	16606	0.256	0.000	1.000	0.437
Severity	16606	-0.222	-0.566	0.008	0.179
Correlation	16606	0.138	-0.049	0.397	0.122
Standard deviation	16606	0.040	0.015	0.085	0.019

Table 5. The effect of the perception of corruption on contagion (basic results)

This table presents the effect of the perception of corruption on the abnormal returns to intra-country peers (contagion). The dependent variable is the cumulative abnormal return (CAR [-1, +1]) for intra-country peers of firms that are alleged to have committed financial misconduct (day 0 is the trading day on which such misconduct is revealed to the market). We measure the perception of corruption using corruption perception index published by Transparency International. See Appendix 3 for the definition of other independent variables. Heteroscedasticity-consistent robust standard errors clustered at country level are reported in brackets. Significance at the 10%, 5%, or 1% level is indicated by *, **, or ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Perception of corruption	-0.106	-0.302	-0.340	-0.304	-0.311	-0.316	-0.356	-0.359	-0.439
	[0.023]***	[0.120]**	[0.143]**	[0.121]**	[0.121]**	[0.121]**	[0.146]**	[0.135]**	[0.146]***
Log of assets	0.062	0.076	0.076	0.076	0.076	0.076	0.076	0.078	0.077
	[0.035]*	[0.042]*	[0.042]*	[0.042]*	[0.042]*	[0.042]*	[0.042]*	[0.043]*	[0.042]*
Market to Book	0.038	0.043	0.045	0.043	0.045	0.044	0.047	0.049	0.050
	[0.044]	[0.045]	[0.046]	[0.045]	[0.045]	[0.045]	[0.046]	[0.046]	[0.046]
Leverage	-0.216	-0.242	-0.243	-0.242	-0.241	-0.240	-0.243	-0.285	-0.276
	[0.213]	[0.234]	[0.232]	[0.233]	[0.236]	[0.233]	[0.234]	[0.241]	[0.240]
Profitability	-0.228	-0.164	-0.159	-0.164	-0.159	-0.163	-0.153	-0.159	-0.145
	[0.178]	[0.174]	[0.177]	[0.174]	[0.173]	[0.174]	[0.175]	[0.182]	[0.179]
Severity	2.032	2.035	2.037	2.035	2.016	2.026	2.018	1.996	2.023
	[0.165]***	[0.138]***	[0.141]***	[0.139]***	[0.140]***	[0.136]***	[0.142]***	[0.157]***	[0.128]***
Correlation	-1.380	-1.627	-1.630	-1.629	-1.655	-1.646	-1.658	-1.619	-1.608
	[0.413]***	[0.403]***	[0.400]***	[0.396]***	[0.385]***	[0.393]***	[0.378]***	[0.351]***	[0.398]***
Standard deviation	-20.942	-20.321	-20.350	-20.321	-20.397	-20.341	-20.433	-20.140	-20.244
	[1.053]***	[1.467]***	[1.453]***	[1.464]***	[1.464]***	[1.443]***	[1.430]***	[1.389]***	[1.377]***
Log of GDP per capita		-0.669	-0.529	-0.673	-0.659	-0.700	-0.492		-0.312
		[0.173]***	[0.235]**	[0.180]***	[0.173]***	[0.181]***	[0.228]**		[0.410]
Stock value/GDP		-0.003	-0.003	-0.003	-0.003	-0.003	-0.003		-0.004
		[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]		[0.003]
Institution			-0.310				-0.377		-0.408
			[0.440]				[0.468]		[1.294]
Log of distance				0.082			0.160		
				[1.041]			[1.164]		

Cultural distance					0.233		0.229		
					[0.319]		[0.328]		
Public enforcement						0.179	-0.021		
						[0.394]	[0.447]		
Constant	0.681	6.988	5.991	6.261	6.109	7.312	3.441	1.906	5.038
	[0.274]**	[2.093]***	[2.291]**	[9.394]	[2.290]**	[2.154]***	[10.692]	[0.989]*	[3.710]
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region	No	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A
Country	No	No	No	No	No	No	No	Yes	Yes
Observations	16606	16606	16606	16606	16596	16606	16596	16606	16606
R-squared	0.021	0.023	0.023	0.023	0.023	0.023	0.023	0.024	0.024

Table 6. The effect of the perception of corruption on contagion (interaction analysis with firm-specific reputation factors)

This table presents the effect of the perception of corruption on the abnormal returns to intra-country peers (contagion). The dependent variable is the cumulative abnormal return (CAR [-1, +1]) for intra-country peers of firms that are alleged to have committed financial misconduct (day 0 is the trading day on which such misconduct is revealed to the market). We measure the perception of corruption using corruption perception index published by Transparency International. See Appendix 3 for the definition of other independent variables. Heteroscedasticity-consistent robust standard errors clustered at country level are reported in brackets. Significance at the 10%, 5%, or 1% level is indicated by *, **, or ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Perception of corruption	-0.479	-0.559		-0.389	-0.470		-0.383	-0.459	
	[0.130]***	[0.147]***		[0.143]**	[0.152]***		[0.133]***	[0.147]***	
Perception of Corruption * Log of asset	0.020	0.020	0.021						
	[0.004]***	[0.004]***	[0.004]***						
Perception of Corruption * Top 4 auditor				0.044	0.045	0.042			
				[0.016]**	[0.016]***	[0.013]***			
Perception of Corruption * Dividend payers							0.071	0.069	0.074
							[0.012]***	[0.012]***	[0.013]***
Top 4 auditor				0.010	0.003	-0.004			
				[0.031]	[0.032]	[0.040]			
Dividend payers							-0.118	-0.108	-0.114
							[0.104]	[0.102]	[0.112]
Log of asset	0.024	0.023	0.015	0.063	0.062	0.059	0.075	0.074	0.069
	[0.021]	[0.021]	[0.020]	[0.035]*	[0.035]*	[0.035]	[0.046]	[0.046]	[0.047]
Market to Book	0.035	0.036	0.023	0.039	0.040	0.027	0.045	0.047	0.034
	[0.039]	[0.038]	[0.034]	[0.042]	[0.042]	[0.038]	[0.044]	[0.044]	[0.040]
Leverage	-0.331	-0.322	-0.314	-0.267	-0.260	-0.253	-0.260	-0.252	-0.240
	[0.234]	[0.233]	[0.248]	[0.242]	[0.241]	[0.260]	[0.248]	[0.247]	[0.262]
Profitability	-0.053	-0.040	-0.068	-0.069	-0.054	-0.092	-0.163	-0.150	-0.185
	[0.162]	[0.157]	[0.144]	[0.166]	[0.161]	[0.151]	[0.175]	[0.173]	[0.169]
Severity	1.993	2.020	2.152	1.989	2.018	2.147	1.988	2.017	2.150
	[0.157]***	[0.128]***	[0.243]***	[0.155]***	[0.126]***	[0.244]***	[0.157]***	[0.129]***	[0.243]***
Correlation	-1.652	-1.640	-1.637	-1.598	-1.583	-1.571	-1.647	-1.632	-1.626
	[0.356]***	[0.405]***	[0.470]***	[0.345]***	[0.395]***	[0.461]***	[0.354]***	[0.401]***	[0.467]***
Standard deviation	-20.522	-20.621	-21.491	-19.733	-19.818	-20.725	-19.965	-20.048	-20.863
	[1.460]***	[1.450]***	[1.620]***	[1.567]***	[1.549]***	[1.621]***	[1.363]***	[1.338]***	[1.492]***

Log of GDP per capita		-0.310			-0.260			-0.231	
		[0.398]			[0.385]			[0.415]	
Stock value/GDP		-0.004			-0.004			-0.004	
		[0.003]			[0.003]			[0.003]	
Institution		-0.367			-0.361			-0.389	
		[1.299]			[1.302]			[1.308]	
Constant	2.106	5.215	-0.569	2.194	4.887	0.599	1.801	4.238	-0.226
	[0.928]**	[3.510]	[0.142]***	[1.048]**	[3.586]	[0.205]***	[0.973]*	[3.736]	[0.227]
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year * country	No	No	Yes	No	No	Yes	No	No	Yes
Observations	16606	16606	16606	16606	16606	16606	16606	16606	16606
R-squared	0.024	0.024	0.032	0.024	0.024	0.031	0.024	0.024	0.032

Table 7. The effect of the perception of corruption on contagion (interaction analysis with SOX)

This table presents the effect of the perception of corruption on the abnormal returns to intra-country peers (contagion). The dependent variable is the cumulative abnormal return (CAR [-1, +1]) for intra-country peers of firms that are alleged to have committed financial misconduct (day 0 is the trading day on which such misconduct is revealed to the market). We measure the perception of corruption using corruption perception index published by Transparency International. See Appendix 3 for the definition of other independent variables. Heteroscedasticity-consistent robust standard errors clustered at country level are reported in brackets. Significance at the 10%, 5%, or 1% level is indicated by *, **, or ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Perception of corruption	-0.154	-0.465	-0.452	-0.484	-0.453	-0.475	-0.474	-0.442	-0.595
	[0.036]***	[0.139]***	[0.155]***	[0.148]***	[0.140]***	[0.142]***	[0.166]***	[0.183]**	[0.200]***
Perception of Corruption * Post SOX	0.053	0.194	0.202	0.203	0.183	0.193	0.206	0.166	0.244
	[0.050]	[0.066]***	[0.067]***	[0.071]***	[0.074]**	[0.066]***	[0.086]**	[0.085]*	[0.074]***
Log of asset	0.062	0.077	0.077	0.077	0.076	0.077	0.076	0.079	0.077
	[0.035]*	[0.043]*	[0.043]*	[0.042]*	[0.042]*	[0.042]*	[0.042]*	[0.043]*	[0.042]*
Market to Book	0.039	0.046	0.045	0.047	0.046	0.046	0.046	0.051	0.051
	[0.044]	[0.045]	[0.045]	[0.045]	[0.045]	[0.045]	[0.045]	[0.046]	[0.046]
Leverage	-0.221	-0.258	-0.258	-0.258	-0.257	-0.257	-0.257	-0.294	-0.287
	[0.214]	[0.240]	[0.240]	[0.240]	[0.241]	[0.239]	[0.241]	[0.248]	[0.247]
Profitability	-0.232	-0.157	-0.159	-0.157	-0.156	-0.156	-0.159	-0.156	-0.139
	[0.182]	[0.179]	[0.182]	[0.180]	[0.177]	[0.179]	[0.179]	[0.187]	[0.185]
Severity	2.036	2.047	2.046	2.042	2.038	2.039	2.036	1.989	2.009
	[0.165]***	[0.135]***	[0.133]***	[0.135]***	[0.143]***	[0.132]***	[0.140]***	[0.149]***	[0.111]***
Correlation	-1.353	-1.577	-1.574	-1.588	-1.590	-1.593	-1.597	-1.584	-1.564
	[0.415]***	[0.403]***	[0.407]***	[0.394]***	[0.386]***	[0.393]***	[0.388]***	[0.347]***	[0.410]***
Standard deviation	-20.974	-20.262	-20.246	-20.264	-20.335	-20.279	-20.336	-20.002	-20.095
	[1.050]***	[1.591]***	[1.602]***	[1.588]***	[1.587]***	[1.568]***	[1.570]***	[1.554]***	[1.578]***
Log of GDP per capita		-0.615	-0.683	-0.634	-0.612	-0.639	-0.690		-0.779
		[0.171]***	[0.212]***	[0.180]***	[0.172]***	[0.179]***	[0.229]***		[0.446]*
Stock value/GDP		-0.003	-0.003	-0.003	-0.003	-0.003	-0.003		-0.004
		[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]		[0.003]
Institution			0.156				0.079		-0.150
			[0.420]				[0.401]		[1.238]
Log of distance				0.552			0.713		
				[1.124]			[1.326]		

Cultural distance					0.096		-0.015		
					[0.335]		[0.411]		
Public enforcement						0.140	0.106		
						[0.404]	[0.475]		
Constant	0.741	6.691	7.181	1.773	6.296	6.946	0.721	2.425	9.883
	[0.277]**	[2.000]***	[2.014]***	[9.889]	[2.355]**	[2.059]***	[11.336]	[1.325]*	[4.491]**
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region	No	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA
Country	No	No	No	No	No	No	No	Yes	Yes
Observations	16606	16606	16606	16606	16596	16606	16596	16606	16606
R-squared	0.021	0.023	0.023	0.023	0.023	0.023	0.023	0.024	0.024

Table 8. Alternative measures of the perception of corruption

This table presents the effect of the perception of corruption on the abnormal returns to intra-country peers (contagion). The dependent variable is the cumulative abnormal return (CAR [-1, +1]) for intra-country peers of firms that are alleged to have committed financial misconduct (day 0 is the trading day on which such misconduct is revealed to the market). The first measure for the perception of corruption is the control of corruption measure from the World Governance Indicators produced by the World Bank (http://info.worldbank.org/governance/wgi/index.aspx#home). The second measure is the assessment of corruption by the International Country Risk Guide (ICRG). See Appendix 3 for the definition of other independent variables. Heteroscedasticity-consistent robust standard errors clustered at country level are reported in brackets. Significance at the 10%, 5%, or 1% level is indicated by *, **, or ***, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Control of corruption (World Bank)	-0.222	-0.712	-1.141	-1.870	-2.145					
	[0.042]***	[0.291]**	[0.514]**	[0.507]***	[0.502]***					
Corruption (ICRG)						-0.152	-0.429	-0.470	-0.396	-0.492
						[0.043]***	[0.113]***	[0.150]***	[0.134]***	[0.121]***
Log of assets	0.060	0.076	0.075	0.077	0.077	0.062	0.077	0.076	0.079	0.077
	[0.036]	[0.043]*	[0.042]*	[0.043]*	[0.043]*	[0.036]*	[0.043]*	[0.042]*	[0.043]*	[0.042]*
Market to Book	0.036	0.040	0.045	0.046	0.051	0.040	0.047	0.046	0.049	0.051
	[0.044]	[0.045]	[0.046]	[0.045]	[0.046]	[0.043]	[0.045]	[0.045]	[0.045]	[0.046]
Leverage	-0.212	-0.233	-0.231	-0.271	-0.264	-0.221	-0.259	-0.259	-0.297	-0.289
	[0.213]	[0.228]	[0.227]	[0.234]	[0.230]	[0.210]	[0.244]	[0.245]	[0.251]	[0.251]
Profitability	-0.222	-0.175	-0.155	-0.161	-0.142	-0.270	-0.158	-0.161	-0.162	-0.147
	[0.176]	[0.170]	[0.170]	[0.169]	[0.167]	[0.176]	[0.176]	[0.176]	[0.182]	[0.180]
Severity	2.028	2.027	2.010	2.000	2.039	2.031	2.006	2.008	1.966	1.996
	[0.164]***	[0.136]***	[0.139]***	[0.157]***	[0.141]***	[0.158]***	[0.117]***	[0.119]***	[0.129]***	[0.094]***
Correlation	-1.384	-1.605	-1.632	-1.578	-1.556	-1.324	-1.604	-1.608	-1.585	-1.552
	[0.417]***	[0.423]***	[0.389]***	[0.387]***	[0.416]***	[0.417]***	[0.388]***	[0.382]***	[0.347]***	[0.406]***
Standard deviation	-20.927	-20.266	-20.441	-20.175	-20.257	-21.110	-20.090	-20.196	-19.996	-20.050
	[1.076]***	[1.507]***	[1.456]***	[1.446]***	[1.438]***	[1.016]***	[1.639]***	[1.594]***	[1.606]***	[1.635]***
Log of GDP per capita		-0.739	-0.320		0.315		-0.360	-0.377		-0.240
		[0.252]***	[0.249]		[0.393]		[0.141]**	[0.200]*		[0.342]
Stock value/GDP		-0.003	-0.003		-0.004		-0.003	-0.003		-0.005
		[0.002]	[0.002]		[0.003]		[0.002]	[0.002]		[0.003]
Institution			-1.096		-1.286			-0.110		-0.279
			[0.780]		[0.873]			[0.412]		[1.230]

Log of distance			0.168					0.117		
			[1.247]					[1.194]		
Cultural distance			0.317					-0.247		
			[0.348]					[0.391]		
Public enforcement			-0.104					0.353		
			[0.508]					[0.491]		
Constant	0.763	8.038	3.000	5.678	4.078	0.570	4.007	4.047	0.663	2.904
	[0.278]**	[3.022]**	[11.412]	[1.810]***	[3.513]	[0.280]*	[1.171]***	[10.938]	[0.529]	[3.164]
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region	No	Yes	Yes	N/A	N/A	No	Yes	Yes	N/A	N/A
Country	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Observations	16606	16606	16596	16606	16606	16606	16606	16596	16606	16606
R-squared	0.021	0.023	0.023	0.024	0.025	0.021	0.023	0.023	0.024	0.024

Appendix 1. The definition of trigger events and disclosure locations

Trigger Events	*Definition*
Merger and acquisition or IPO	Failure of acquisition; misrepresentations or failure of disclosure in merger and acquisition or IPO activities
Executive departure	Resignation or replacement of managers or auditors
Investigation	Investigations or enquires by lawyers, SEC, home country security institutions, industry regulation institutions
Operation	Failure in operation and management including sale and product issue, contract issue, debt obligation, investment issue
Others	Bankruptcy; compensation issue; delay of filing; rating downgrade; related party transactions; missing
Restatements	Accounting restatements
Revenue recognition	Improper revenue accounting; misreported costs; understating expense
Locations	*Definition*
SEC filings	10-K; 10-Q; 14D-9; 6-K; 8-K; chapter 11
Press release	Press release; conference call
Media coverage	Media articles
Gate keeper	SEC; institutions; rating agency; analyst; auditor
Special report	Reports provided by special institutions supposed to have shorting motivation, like Muddy Waters, Citron Research, and so on.
Others	Missing

Appendix 2. Litigation case descriptions and revelation dates

Class action litigation enables us to identify the offending firm's business location and the dates and locations of events that trigger the revelation of misconduct. Below is an example:

A class action lawsuit is filed against Alvarion Limited on 1/19/2007, with the class action time period from 11/3/2004 to 5/12/2006. In the summary of action in the plaintiff's filings, the plaintiff describes Alvarion Limited as follows:

"Alvarion is an Israeli corporation headquartered in Tel Aviv, Israel. Alvarion provides wireless broadband connectivity solutions and specialized cellular networks".

Next, the plaintiff's claim commonly lists the alleged misdeeds perpetrated by the defendant. In this case, the plaintiff describes as follows:

"On January 19, 2005, the truth regarding Telmex purchases and Alvarion's growth rate first began to emerge, as Kevin Dede – an analyst for Merriman Curhan Ford & Co. – expressed sharp skepticism of Telmex's continued purchases in a report:
…….
While common sense leads us to believe that business with this key customer won't disappear altogether, we do not believe business can maintain 2004 growth levels ($19 million in 2003 to approximately $75 million in 2004), given we have seen no announcements of follow-on orders since October 4 last year.
…….
The market reacted quickly to Dede's analyst report, and the stock price of Alvarion dropped 13% that day to close at $10.71 per share amid heavy trading."

For this observation, we identify the critical information as follows:

Business location: Israel
Revelation date of misconduct: January 19, 2005
Trigger events: Revenue recognition
Source of trigger events: Analyst

Appendix 3. Variables definitions and sources

Variables names	Variable definitions	Sources
Firm Characteristics		
Log of assets	Log of total assets, assets are measured in millions of US dollars	Compustat
Leverage	(Book value of long-term debt + debt in current liabilities)/ total assets	Compustat
Market to Book	(Market value of equity + Book value of total debt)/ total assets. Market value of equity is price per share multiplied by the total number of shares outstanding. Book value of total debt equals total assets minus book value of equity	Compustat
Profitability	Earnings before interest, taxes, depreciation and amortization/ total assets	Compustat
Dividend payers	Indicator equal to 1 if the firm pays dividend, 0 otherwise	Compustat
Top 4 auditor	Indicator equal to 1 if the firm is audited by a top 4 auditor, 0 otherwise	AuditAnalytics
Severity	Cumulative abnormal return in the [-1, +1] event window for offending firms	SCAC; CRSP
Standard Deviation	The standard deviation of stock returns in the 250 trading days before the corporate misconduct revelation date	CRSP
Correlation	The correlation of stock returns between the offending firm and country peers in the 250 trading days before the corporate misconduct revelation date	CRSP
Country Characteristics		
Perception of corruption	Corruption perception index (CPI) published by Transparency International. The CPI ranks countries/territories based on how corrupt their public sector is perceived to be. This is a composite index, a combination of polls, drawing on corruption-related data collected by a variety of reputable institutions. The Corruption perceptions index scores countries on a scale of 0 (highly corrupt) to 10 (very clean). To make this measure easier to interpret, we use 10 minus the index	Transparency International
Control of corruption (World Bank)	Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests. Estimate of governance ranges from approximately -2.5 (weak) to 2.5 (strong). For each country, we fill in missing values with the latest available value from prior years. To make this measure easier to interpret, we use 3 minus the index	Worldwide Governance Indicators
Corruption (ICRG)	6 points assessment of corruption within the political system. This measure is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, 'favor-for- favors', secret party funding, and suspiciously close ties between politics and business. For each country, we fill in missing values with the latest available value from prior years. To make this measure easier to interpret, we use 6 minus the index	International Country Risk Guide
Log GDP per Capita	Logarithmic of per capita Gross Domestic Product (constant US$, millions)	World Development Indicators
Stock value/GDP	Total market value of shares traded in the country in a year, divided by GDP	World Development Indicators (WDI)
Institution	Average value of remaining five dimensions of world governance of indicators including, Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, and Rule of Law	Worldwide Governance Indicators
Log of distance	Log of geographic distance between firms' home country and US, distance is measured in kilometers	CEPII Research Center
Culture distance	The Euclidean distance between two key dimensions of culture: the traditional vs. secular/rational and the survival vs. self-expression orientations	World Value Survey
Public enforcement	Index of public enforcement if all disclosure and approval requirements have been met. Ranges from 0 to 1. One quarter point when each of the following sanctions is available: (1) fines for the approving body; (2) jail sentences for the approving body; (3) fines for Mr. James; and (4) jail sentence for Mr. James	Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) (see p.432)
Post SOX	An indicator equal to 1 for observations on or after year 2002, 0, otherwise	