

# CAUSES AND CONSEQUENCES OF FIRM DISCLOSURES OF ANTICORRUPTION EFFORTS

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## Abstract

Using Transparency International's ratings of firm disclosures on anticorruption efforts, we find that disclosures are related to firms' country and industry exposures to corruption, and to enforcement and monitoring variables. We then examine whether firms' residual anticorruption disclosures are related to subsequent allegations of corruption and subsequent performance. Firms with abnormally low anticorruption disclosures have higher subsequent media allegations of corruption than firms with abnormally high disclosure. They also report higher future sales growth, and a negative relation between profitability and sales growth in high corruption countries. None of those differences is observed across firms with high and low abnormal anticorruption disclosures in low corruption countries. We interpret these findings as indicating that firms with abnormally high disclosures enforce policies designed to combat corruption. These policies are accompanied by lower subsequent allegations of corruption, and lower but more profitable sales growth in high corruption countries.

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## 1. Introduction

Corruption is increasingly viewed as a significant impediment to economic development.<sup>1</sup> A recent World Bank survey of more than 150 leading public officials and citizens from 60 developing nations cited corruption as the number one factor hampering their countries' economic development and growth. Recent estimates of the magnitude of corruption also indicate its severity. For example, Mexico Transparency estimated that in 2007, Mexicans paid 115 million bribes amounting to \$175 million for 35 services that should have been free. An Integrity Watch Afghanistan study indicated that in 2009, the average Afghani citizen paid \$156, or 31% of average per capita income, in bribes. The World Bank estimates that globally bribes paid by individuals and firms to the public sector, amount to \$1 trillion per year, and that the cost of corruption equals more than 5% of global GDP (\$2.5 trillion).

Largely because of data limitations, research on corruption has focused on its causes and consequences at the country level. Country factors are certainly important in learning about corruption. But our understanding of corruption is also likely deepened by studying the phenomenon at the firm level, where many questions remain unanswered. In this study we try to answer some of those questions by using Transparency International's (TI) ratings of firms' public disclosures of strategy, policies, and management systems for combatting corruption. Our sample comprises 480 of the world's largest companies. We use the disclosure ratings to pose three questions. First, are firms' disclosures on anticorruption efforts related to their exposure to corruption

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<sup>1</sup> The World Bank, and this study, defines corruption as the misuse of public office for private gain. It arises when individuals or firms pay bribes to public officials to facilitate legal transactions (e.g. to accelerate the purchase of legitimate government licenses), to avoid potentially costly government regulations (e.g. to evade pollution regulations), or to secure lucrative government contracts.

risk, as well as to enforcement and monitoring costs? Second, do firms with abnormally high disclosures face fewer subsequent allegations of corruption? And third, is subsequent firm growth and profitability related to abnormally strong and weak anticorruption disclosures?

Our study contributes to a growing literature on bribery at the firm and individual level,<sup>2</sup> and deepens our understanding of corporate disclosure of anticorruption efforts. Advocates for transparency have argued that disclosure is a “critical aspect of demonstrating commitment by companies to prevent, monitor and address corruption” (Transparency International, 2009). But it could also represent “cheap talk” to persuade regulators that the firm is complying with local laws or ethical standards, or to create a public image of a good corporate citizen. The casual observation that there is wide variation in terms of anticorruption disclosures suggests that the perceived benefits and costs vary widely across companies. Barriers to disclosure include concerns raised by legal departments about exposure to increased liabilities and expenses incurred to put in place a robust anticorruption system (PwC 2008). Benefits to disclosure include a better reputation and a lower probability of employees engaging in corrupt activities which could lead to a loss of credibility and social license, economic losses due to government penalties and customers refusing to do business with the company, and a lower attractiveness to skilled employees. For example, among large firms, 96% of senior executives believe that a publicly disclosed anticorruption program is very valuable or somewhat valuable to the company’s reputation and brands (PwC, 2008).

We make two contributions to the literature on firm bribery. First, by examining

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<sup>2</sup> See Svensson, 2003; Khwaja and Mian, 2005; Beck, Demirguc-Kunt, and Maksimovic, 2005; Lyon and Maher, 2005; Bertrand, Djankov, Hanna and Mullainathan, 2007; Di Tella and Franschelli, 2011; and Spencer and Gomez, 2011.

whether disclosures on anticorruption efforts are related to costly actions, such as hiring more reputable audit firms and U.S. listing, and to future allegations of corruption, we provide evidence on whether such disclosures reflect firm commitment, or are merely cheap talk. Second, our tests of the relation between firms' residual anticorruption disclosures and their financial performance provide evidence on the corporate costs and benefits of corruption.

Our results indicate that firm disclosures on anticorruption efforts are related to various proxies for potential exposure to corruption, including the extent of corruption in home and host countries, and operation in a high-risk industry. Disclosures are also related to monitoring and enforcement costs, such as enforcement of corruption laws by home countries, U.S. cross-listing that subjects firms to U.S. laws and enforcement, monitoring by big-four auditors, and prior experience with corruption enforcement. Overall, our model of disclosure explains 42% of the variation in ratings. In addition to increasing our understanding of the factors that explain firms' disclosures of anticorruption policies, these findings increase our confidence that the TI ratings are related to underlying risks of corruption. Their relation to costly enforcement and to costly complementary actions, such as U.S. listing and hiring big four audit firms, suggests that disclosure is more than cheap talk.

The residuals of the disclosure model indicate whether the sample firms have abnormally high or low disclosures of their anticorruption efforts. If these reflect real efforts to combat corruption and are more than cheap talk, firms with positive residuals would be less likely to face lower subsequent risk of being linked to corruption. To test this hypothesis, we collect the number of articles that appear in major business

publications around the world and identify those that allege a corporation is involved in corrupt activities. Controlling for a firm's media presence and for the number of articles about corruption in prior years, we find that firms with abnormally high anticorruption disclosures have fewer subsequent media articles alleging corrupt activities.

We then use geographic segment data to examine three-year ahead sales growth for sample firms with abnormally strong and weak transparency ratings. These tests compare sales growth rates in high- and low-corruption segments, controlling for factors associated with disclosure ratings. We find that in segments where corruption risk is high, firms with abnormally low disclosure ratings have about 16% subsequent three-year sales growth versus only 1% for firms with abnormally strong ratings. This is consistent with firms that have unexpectedly strong disclosure ratings enforcing anticorruption efforts in high-risk countries, leading to lower growth than firms with particularly weak ratings. In contrast, residual ratings are unrelated to future sales growth in segments where corruption risk is low.

However, our analysis also shows that sample firms with abnormally low disclosures have a negative relation between their three-year ahead changes in profit margins/ROEs and sales growth in corrupt geographic segments. Such is not the case for firms with abnormally strong disclosures. Nor do we find any differential relation for firms with abnormally high and low disclosure using sales growth in geographic segments with low corruption risk. These findings suggest that firms with abnormally high disclosure enforce policies designed to combat corruption at the cost of lower growth. But such firms are able to defend their margins and ROEs on incremental sales in these markets, whereas firms with abnormally low disclosure experience a decrease in

their profitability as they grow.

The remainder of the paper is organized as follows. Section 2 discusses prior research on corruption. Section 3 describes the data and empirical tests, our findings are presented in section 4, and conclusions in section 5.

## **2. Prior Research on Corruption**

Academic research on corruption has typically focused on studying its macro causes and consequences. These studies conclude that corruption has an adverse effect on a country's economic performance, lowering its GDP per capita, foreign investment and economic growth, and increasing social inequality.<sup>3</sup> Corruption appears to be related to a complex set of political and regulatory factors, such as the size of the public sector, autocratic government, weak regulations, and lower economic competition;<sup>4</sup> cultural variables, like low levels of generalized trust, non-Protestant populations, and greater acceptance of hierarchy;<sup>5</sup> and geographic and historical influences, such as the abundance of natural resources, corruption among neighboring states, and distance from the world's major trading centers.<sup>6</sup>

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<sup>3</sup> See Hall and Jones 1999; Kaufmann et al. 1999a; Wyatt 2002; Lambsdorff 2003, Knack and Keefer 1995; Mauro 1995; 1997; Brunetti et al. 1998; Brunetti and Weder 1998; Campos et al. 1999; Gymiah-Brempong 2002; Rock and Bonnett 2004; Tanzi and Davoodi 2001; Gupta et al. 2002; Gymiah-Brempong 2002; You and Khagram 2005; Anoruo and Braha 2005; Mo 2001; Pellegrini and Gerlagh 2004; Méon and Sekkat 2005.

<sup>4</sup> Elliott 1997; Adsera et al. 2000; Montinola and Jackman 2002; Gerring and Thacker 2005; Graeff and Mehlkop 2003; La Porta et al. 1999; Goldsmith 1999; Sandholtz and Koetzle 2000; Persson et al. 2003; Gerring and Thacker 2004, 2005; Montinola and Jackman 2002, Broadman and Recanatini 1999; Djankov et al. 2002; Svensson 2005; Gerring and Thacker 2005; Ades and Di Tella 1997, 1999; Lambsdorff and Cornelius 2000; Ades and Di Tella 1995; 1997, 1999; Sung and Chu 2003; Gerring and Thacker 2005; Treisman 2000; Leite and Weidemann 1999; and Graeff and Mehlkop 2003.

<sup>5</sup> La Porta et al. 1997; 1999; Uslaner 2004; Treisman 2000; Lipset and Lenz 2000; Gerring and Thacker 2005; Anderson and Tverdova 2003.

<sup>6</sup> Ades and Di Tella 1999; Leite and Weidemann 1999; Sandholtz and Gray 2003; Gerring and Thacker 2005; Treisman 2000; Swamy et al. 2001.

Recent studies have studied corruption from the perspective of firms and individuals. Studies of firms conclude that organizations are more likely to pay bribes when they employ a local partner in high-risk countries (Spencer and Gomez, 2011) and when they have low bargaining power (Svensson, 2003).

Firm studies have also examined the consequences of corruption in a variety of settings. Beck, Demirguc-Kunt, and Maksimovic (2005) show that firm growth is constrained in countries where there is corruption among bank officials. Kwaja and Mian (2005) find that politically connected firms in Pakistan received more loans and had higher default rates than unconnected firms. Di Tella and Franceshelli (2011) find that Argentinian newspapers are less likely to report government corruption on their front page if they generate more government advertising. Weitzel and Berns (2006) show that takeover premiums are lower for targets in corrupt countries, and interpret this as evidence of acquirers being price-protected against any incremental risk or lower profits associated with the deal. Lyon and Maher (2005) document that U.S. firms that reported paying bribes prior to the FCPA faced higher audit fees, consistent with bribery increasing monitoring costs. Kwok and Tadesse (2006) examine whether multinational corporations (MNCs) influence corruption in countries in which they operate. The authors hypothesize that this can arise from MNC home country regulations that penalize MNCs caught engaging in corruption, and host country businesses learning about the costs of corruption from MNCs. Consistent with this hypothesis, they find that corruption is negatively related to past foreign direct investment.

However, despite the useful insights generated by these previous studies, our level of understanding of why different firms exhibit different attitudes towards corruption and

the consequences for their performance is still relatively low.

### **3. Sample, Anticorruption Ratings, and Empirical Tests**

#### ***3.1. Anticorruption Ratings***

In 2007, Transparency International (TI) developed a study to rate firms' public disclosures of their anticorruption efforts. The specific rating system used to assess a company's anticorruption efforts is presented in the Appendix. The information is separated into three categories: strategy (valued at 10 points), policies (valued at 15 points), and management systems (valued at 25 points).<sup>7</sup>

Strategy information covered whether a firm discloses an anticorruption policy, its membership of anticorruption initiatives, and the extent of its application of the policy. Policy information included disclosure of policies prohibiting facilitation payments and the giving and receiving of inappropriate gifts by employees, as well as the regulation and transparency of political contributions and lobbying. Finally, management system disclosures covered information provided on requirements for business partners to comply with the company's anticorruption efforts, anticorruption training for employees and business partners, whistleblower and help systems for employees, systems to monitor corruption breaches and to act against employees involved, and key performance indicators to track complaints, actions taken, and the extent of corruption-related training.

#### ***3.2. Sample***

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<sup>7</sup> TI assigned a higher weight to management systems because they believe that systems are less likely to represent cheap talk but rather real efforts of corporations to combat corruption.

TI's initial sample comprised 500 leading firms from Forbes' March 2007 Global 2000, including the largest 250 listed companies, 107 companies from high-risk sectors, and 143 companies from the top 25 global exporting countries. Companies eligible to be added from high-risk sectors comprised the largest 40 oil and gas firms, the largest 40 companies in basic materials (including forestry and mining), the 20 largest aerospace and defense firms, and the largest 20 firms in each of the capital goods, construction, telecommunications, and utilities sectors. Eligible companies from the 25 largest global exporters (as defined by the World Bank in 2005) included a minimum of 40 companies from the three largest exporting countries (United States, Germany and Japan), at least 30 companies from the next three largest export countries (China, France and the United Kingdom), at least 20 from the next three largest export countries (Italy, Canada and Netherlands), 10 or more from the 10<sup>th</sup> to 20<sup>th</sup> largest exporting nations (excluding Saudi Arabia, Malaysia and Singapore which had less than 10 companies listed on the Forbes' Global 2000), and at least 5 companies from the 21<sup>st</sup> to 25<sup>th</sup> largest export countries.

Of the initial sample of 500, 14 firms were eliminated by TI because they were no longer listed, were a holding company of another company included in the analysis, or there was inadequate information in English or the local language to adequately evaluate their efforts. We eliminated six more companies because of data unavailability, leaving a final sample of 480 firms.

Table 1a presents the distribution of the initial sample firms by country, and table 1b shows the distribution by sector. Twenty-five percent of the sample firms are from the U.S., 8 percent each from Japan and Germany, and 6 percent each from the U.K., France and China. In total, 31 countries are represented in our sample. Comparing these numbers

to the contribution of each country to world GDP as of 2007, US, UK and French firms are slightly overrepresented, while Chinese firms are underrepresented. Industries heavily represented, each with ten percent, include banking, basic materials, and oil and gas. Other industries with substantial presence in the sample are capital goods, chemicals, construction, telecommunications, and utilities.

To construct the ratings for each of the 480 sample companies, TI investigators examined their public documents available prior to June 2007 (corporate websites, annual reports, and sustainability reports). For further information on the ratings methodology see Transparency International (2009).

Summary statistics on the aggregate scores for the sample companies are reported in table 2. The maximum score for any single company is 50. The mean score is 16.9 and the median 19, implying that most of the sample companies disclose less than 50 percent of the anticorruption factors included in the TI rating system. However, there is significant variability in corporate disclosure of anticorruption efforts. The first quartile score is 3.75, implying that more than 25 percent of the sample firms discloses almost nothing. In contrast, the third quartile score is 26.

### ***3.3. Factors Associated with Disclosure Ratings***

Our first test examines factors that are associated with firms' disclosure ratings. These include factors representing regulatory enforcement and external monitoring of business practices associated with corruption and bribery, factors that reflect inherent corruption risk, and a variety of controls.

Regulatory enforcement and monitoring variables include home country enforcement, prior enforcement actions against the company, U.S. listing, and use of a big four audit firm:

- (i) Home country enforcement. Companies from home countries that actively enforce anticorruption laws are expected to demonstrate that they have strong policies in place to protect against the risk of bribery and to reduce the penalties that they could face from any enforcement actions. Home country enforcement is the number of prosecutions in the home country in 2006 and 2005, deflated by its share of world exports (representing its economic importance).<sup>8</sup> We obtain that data from the OECD enforcement report on bribery and corruption.
- (ii) Prior enforcement actions against the company. Companies that have faced prior enforcement actions for bribery or corruption are expected to have higher disclosure ratings since they are likely to have developed anticorruption policies in response to the prior actions and to be more conscious of the costs of corruption. Prior enforcement actions is an indicator variable that takes the value one if a firm was prosecuted for corruption in the past, and zero otherwise.
- (iii) U.S. Listing. Firms listed as ADRs on the New York Stock Exchange and NASDAQ are required to adhere to the U.S. Foreign Corrupt Practices Act, and are subject to U.S. enforcement of the Act, which is the strongest in the world. Firms that elect to list in the U.S. are therefore expected to have

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<sup>8</sup> Frequency of enforcement actions against corruption tends to be very persistent over time at the country level and as a result including data for previous years, yields very similar results. Moreover, we expect that firms' anticorruption efforts will be influenced more by the *current* enforcement environment.

demonstrated strong efforts to combat corruption to avoid the regulatory costs of enforcement actions. U.S. listing is a dummy variable that takes the value one if the sample firm is listed as an ADR on the NYSE or NASDAQ at the end of 2006, and zero otherwise.<sup>9</sup>

- (iv) Big Four Auditors. Given their reputations, big four audit firms are expected to demand stronger anticorruption standards and disclosures by the companies they audit. Consequently, we predict that the disclosure ratings will be positively related to big four audit firm selection. The big four audit variable is a dummy variable that takes the value one if the sample firm has a big-four auditor at the end of 2006 and zero otherwise.

Variables reflecting the inherent risks of corruption faced by companies include home and host country corruption rankings and whether the firm operates in a high-risk industry. Although we expect that these variables will be related to disclosure ratings, it is difficult to predict whether their effect will be positive or negative. Firms that operate in high corruption home or host environments could opt for extensive disclosure of their anticorruption efforts to communicate their commitment to internal and external stakeholders, and to reduce the risks. Alternatively, such firms could decide to be opaque to avoid drawing attention to questionable business practices.

The specific variables used to reflect exposure to corruption are as follows:

- (v) Home Country Corruption Rating. The level of home country corruption is likely to be an important factor in determining a firm's inherent risks of corruption and bribery, and to influence its anticorruption efforts and

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<sup>9</sup> Indicatively, the United States pursued 75% of all foreign bribery enforcement actions between 1977 and 2011. The second most active enforcer was the United Kingdom with 5.1% of the cases. For more information see the *TRACE Global Enforcement Report 2011*.

transparency. Home country corruption is the 2006 World Bank corruption rating<sup>10</sup> for sample firms' country of origin.

- (vi) Weighted Average Host Geographic Segment Corruption Ratings. The sample firms typically operate in a variety of geographic segments outside their home country, ranging from those where corruption is common to those where it is not. Corruption ratings for each host segment are computed by weighting the 2006 World Bank corruption ratings for the countries that make up the segment by countries' relative GDP. We then compute the weighted average rating for all host segments for a firm by weighting each segment rating by its share of total company sales.
- (vii) Industry Risk. A company's exposure to corruption is also likely to be determined by the industry in which it operates. Industries that sell products and services to government customers are considered high-risk. As identified by TI, these include oil and gas, basic materials (including forestry and mining), defense, capital goods, construction, telecommunications, and utilities sectors. These industries score the highest at TI's Bribe Payers Index (BPI) that measures the supply of bribes in different sectors. We measure industry risk by constructing an indicator variable that takes the value one for firms that operate in one of these sectors, and zero otherwise.

Finally, we include controls for firm size, profitability, ownership structure and diversification that other studies have found to be related to disclosure:

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<sup>10</sup> The World Bank Control of Corruption measure is an aggregate of 15 measures that reflect the severity of corruption in a country. For the firms in our sample, this measure ranges from -0.81 for the most corrupt country to 2.39 for the least corrupt country.

- (viii) Firm Size. If there are economies of scale at the firm level in developing anticorruption systems and providing detailed disclosure on these efforts, larger firms are more likely to have higher ratings than smaller counterparts. Of course, the TI sample comprises many of the largest firms in the world that should all be able to take advantage of any economies of scale. We measure firm size by the natural logarithm of total assets at the end of 2006.
- (ix) ROE. Prior studies conclude that disclosure increases with profitability (see Healy, Hutton and Palepu 1997, Miller 2002). To control for this effect, we include firm return on equity (ROE) in the model. ROE is net income deflated by beginning-of-year shareholders' equity for 2006.
- (x) Closely held Ownership. Prior research (Eng and Mak 2003) has found that firm disclosure is related to its ownership structure. Closely held ownership is measured by the percentage of shares held by investors that own at least 5% of the shares at the fiscal year end of 2006.
- (xi) Diversification. Bens and Monahan (2004) find evidence consistent with highly diversified firms providing more disclosure, which they argue facilitates monitoring. Given the industry and international diversification of many of the sample firms, we control for these effects. International diversification is the percent of a firm's sales outside its home country divided by total sales for fiscal year end of 2006. Industry diversification is the number of industry segments that the firm operates in, calculated using two-digit SIC codes.

Descriptive statistics for the above variables are presented in table 2. The sample firms are large and profitable. The median firm has assets valued at \$30 billion<sup>11</sup> and a return on equity of 25.3 percent. It operates in 4 business segments,<sup>12</sup> and generates 34 percent of sales outside its home country. Forty-five percent operate in high-risk industries, 89 percent have a big four auditor, and 34 percent list as an ADR in the U.S. Only 2 percent of the firms had corruption enforcement actions in the past, consistent with enforcement actions against corruption and bribery being rare events. Finally, on average the sample companies' host countries are more corrupt than their home countries.

### ***3.4. Disclosures and Subsequent Allegations of Corruption***

As discussed earlier, one challenge for our study is that it is unclear whether ratings of anticorruption disclosure, the primary dependent variable, reflect strong firm commitment to fighting corruption or merely cheap talk. Firms that are committed to combatting corruption are likely to disclose their policies widely to communicate with employees, customers, investors, and regulators. But it is also plausible that less committed firms disclose comparable efforts to combat corruption, but have weak enforcement. Further, the TI ratings are based on public disclosures. Firms that provide extensive internal disclosures (that reach customers and employees directly) could be equally committed to fighting disclosure as highly rated firms. To provide a deeper understanding of whether the disclosure ratings reflect actual firm anticorruption enforcement, we examine whether abnormally strong or weak anticorruption disclosure

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<sup>11</sup> Calculated as the exponent of 17.24.

<sup>12</sup> Calculated as the exponent of 1.39.

ratings are related to allegations of bribery in the media subsequent to the date the ratings were constructed.

If ratings reflect actual commitments to combating corruption, firms with abnormally high ratings (controlling for the factors discussed above) will have made particularly strong efforts to combat bribery and have a lower likelihood of being associated with corruption compared to peers with abnormally low ratings. To test this hypothesis, we estimate the association between abnormal disclosure scores and subsequent allegations of corruption made against the sample firms. To measure subsequent allegations of corruption, we collect data for each sample firm on the number of articles in major news and business publications from 2008 to 2010 where the company is mentioned in conjunction with allegations of corruption or bribery. We include as independent variables the total number of articles where the company is mentioned during this period to control for media interest, and the number of articles where the company is mentioned in relation to a corruption scandal in 2007 to control for preexisting corruption scandals.

We search Factiva for the number of media articles that concern each particular company. Factiva indexes each article and names the company that the article is dealing with as well as the subject under which an article can be classified. We restrict our searches to all media publications that are classified under “Major News and Business Publications” because these publications are more credible, increasing our confidence that the allegations are not completely unsubstantiated. To classify articles alleging that a company is involved in corrupt activities, we add the subject terms “Corruption”, “Bribery”, and “Financial Crime”. The average number of articles that allege a company

as being corrupt is 11.5 in 2010, 8.2 in 2009, and 10.4 in 2008. The average number of articles for a company is 2,804 in 2010, 2,522 in 2009, and 2,437 in 2008.

To test the relation between corruption allegations and prior disclosure, we estimate the following model:

*CorruptArticles<sub>it</sub>*

$$= \alpha + \beta_1 Res\_DR_{i,2007} + \beta_2 TotalArticles_{it} + \beta_3 CorruptArticles_{i,2007} + \varepsilon_i$$

*CorruptArticles<sub>it</sub>* is the number of media articles in year t (t = 2008, 2009, and 2010 for the dependent variable, and t = 2007 for the independent variable) alleging that a firm is involved in corruption. *Res\_DR<sub>i,2007</sub>* is the firm's residual anticorruption disclosure rating in 2007 generated from the disclosure prediction model discussed in the previous section.

*TotalArticles<sub>it</sub>* is the total number of media articles for the company in a given year.

A negative relation between abnormal disclosure ratings and subsequent corruption allegations is consistent with disclosures made by the sample companies reflecting their actual anticorruption efforts. In contrast, an insignificant or positive<sup>13</sup> relation indicates that the company disclosures are merely public relations efforts designed to manage external perceptions.

### ***3.5. Disclosure and Subsequent Performance***

Finally, we examine whether firms' disclosure ratings are related to the firm's subsequent performance. We hypothesize that if firms with abnormally high disclosure ratings are committed to fighting corruption, they will report lower sales growth in high-risk

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<sup>13</sup> A positive relation between subsequent media allegations about corruption and the residual component of disclosure could arise also because the determinants model incompletely captures the riskiness of a firm's environment. This would bias the results against our hypothesis.

countries/regions because they are unable to compete effectively against local incumbents or multinationals with lower anticorruption standards. We expect that this will be especially true in countries where corruption is widespread.

However, the effect of disclosure (and commitment) on profitability is less clear. If firms with high anticorruption efforts generate lower sales growth and are unable to take advantage of economies of scale, their profitability will decline. Yet such firms will also show lower costs because they do not pay bribes. Department of Justice/SEC (2008) allegations against Siemens, reported that on average the costs of bribery paid by the company on a sample of corrupt transactions amounted to 3.2% of sales.<sup>14</sup> Moreover, the unintended consequences of fostering a corporate culture that tolerates corruption and bribery are potentially severe. These companies might face increased costs and lower revenues due to damaged corporate reputation and goodwill, employee theft, product quality and safety concerns, inability to attract top human capital etc. We therefore make no a priori prediction about the relation between disclosure and profitability.

To estimate the relation between subsequent sales growth rates, profits, and disclosure, we compute the following variables:

Geographic Segment Sales Growth Rates: Sales growth rates for the sample firms' geographic segments are computed for the three-year period from 2007-2010, which is subsequent to the date the disclosure rating was constructed.

Geographic Segment Corruption Risk: We use two approaches to assign firms' geographic segments to high- and low-corruption risk categories. The first compares the 2006 World Bank corruption rating for a segment to the average for all segments

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<sup>14</sup> See also comments by Peter Solmssen, General Counsel for Siemens, in discussing corrupt transactions uncovered at Siemens, in *Fighting Corruption at Siemens*, P. Healy and D Pietrowski, HBS Case, September 2009.

included in our sample.<sup>15</sup> Segments with ratings higher (lower) than or equal to the sample median are classified as being high- (low-) risk. Such an approach maximizes the difference between the high- and low-risk classifications.

The second approach recognizes that some firms may decide to compete only in high-risk (or low-risk) regions. In such a case, different firms will be assigned to each category, making it possible that differences in sales growth are attributable to firm-specific correlated omitted variables. We therefore use a firm-specific approach to classify geographic segments. Under this method, a firm's segments are recorded as high (low) risk if they are higher (lower) than or equal to the median rating for all segments where the firm operates. This approach ensures that firm observations are equally represented across both the high- and low-risk categories. However, it also requires that firms report sales for at least two geographic segments. Forty-seven firms have data for only one geographic segment and are therefore excluded from this test.

Profitability: Segment profits are not consistently available for the sample firms. This is because it is fairly unusual for companies to report profitability numbers for each segment. We therefore use two measures of firm profitability changes subsequent to the construction of the disclosure ratings. The first is the change in firm return-on-sales from 2007 to 2010 ( $\Delta$ ROS), where ROS is net income over sales. The second measure is the change in firm Return-on-Equity from 2007 to 2010 ( $\Delta$ ROE) where ROE is defined as net income over beginning-of-year shareholder's equity.

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<sup>15</sup> 47 countries/regions are included in our segment sample.

Abnormal Disclosure Ratings: We use abnormal (residual) firm disclosures of anticorruption efforts in our performance analysis to control for factors associated with disclosure discussed in section 3.3.

We conduct two tests of the effect of corruption risks and disclosure ratings on geographic segment sales growth. The first is a difference-in-differences approach that compares segment sales growth rates for companies with abnormally high and low anticorruption disclosure ratings in segments with high and low corruption risk. The second test uses OLS to estimate the relation controlling for lagged sales growth:

$$SG_{ijt} = \alpha + \beta_1 DCORR_{ij}^{LO} + \beta_2 DResD_i^{HI} + \beta_3 DCORR_{ij}^{LO} * DResD_i^{HI} + \beta_4 SG_{ijt-1} + \varepsilon_i$$

where  $SG_{ijt}$  is sales growth for geographic segment  $j$  for firm  $i$  in period  $t$  ( $t=2007-2010$ ),  $DCORR_{ij}^{LO}$  is a dummy variable that takes the value one for segments with corruption risk below the median segment (and zero otherwise), and  $DResD_i^{HI}$  is a dummy variable that takes the value one if a firm has a residual disclosure rating higher than the sample firm median (and zero otherwise).

To test the impact of segment sales growth on profitability, we estimate the following regression models:

$$\Delta ROS_i$$

$$= \alpha + \beta_1 DResD_i^{HI} + \beta_2 SG_i^{LO} + \beta_3 SG_i^{HI} + \beta_4 DResD_i^{HI} * SG_i^{LO} + \beta_5 DResD_i^{HI} * SG_i^{HI} + \varepsilon_i$$

$$\Delta ROE_i$$

$$= \alpha + \beta_1 DResD_i^{HI} + \beta_2 SG_i^{LO} + \beta_3 SG_i^{HI} + \beta_4 DResD_i^{HI} * SG_i^{LO} + \beta_5 DResD_i^{HI} * SG_i^{HI} + \varepsilon_i$$

$\Delta ROS_i$  is the change Return-on-Sales from 2007 to 2010 for firm  $i$ ,  $\Delta ROE_i$  is the change in Return-on-Equity from 2007 to 2010 for firm  $i$ ,  $SG^{LO}$  ( $SG^{HI}$ ) are the aggregate sales growth rates for low- and high-risk countries/regions.  $\beta_2$  ( $\beta_3$ ) is the effect of sales growth in low (high) corruption countries on the change in profitability margins.  $\beta_4$  represents the impact of high abnormal corruption disclosure in low-risk countries on profitability.  $\beta_5$  represents the impact of high abnormal corruption disclosure in high-risk countries on profitability, and is the primary coefficient of interest.

## **4. Results**

### ***4.1. Determinants of Variation in Disclosure Ratings***

Table 3 reports the results of the model explaining cross-company variation in anticorruption disclosures. We standardize all variables to allow the reader to be able to easily compare the relative economic significance of each variable. Because all variables are scaled to have a standard normal distribution with zero mean and unitary standard deviation, estimates represent the effect on the dependent variable of a one standard deviation increase in the independent variables.

The overall explanatory power of the model is 42%, and many of the independent variables are statistically and economically significant. It is worth noting that the explanatory power of the model is very similar to that generated using only country and industry fixed effects and the firm specific variables that are identified, suggesting that the industry and country variables incorporated in the model capture much of the country and industry variation in the data.

The enforcement and monitoring variables are all statistically and economically significant. Home country enforcement has the largest estimated coefficient of 0.357, implying that a one standard deviation increase in home country enforcement increases a company's disclosure rating by 0.357. The U.S. listing variable and big four auditor variables are also positive and significant, indicating that firms that subject themselves to U.S. anticorruption laws and enforcement through U.S. listing, and firms that hire big four auditors report greater anticorruption efforts. Finally, firms that have experienced past enforcement actions for corruption are more likely to have high disclosure ratings.

The significant estimates for the enforcement and monitoring variables suggest that the disclosure ratings reflect more than just cheap talk. It is costly for firms that pay lip service to anticorruption efforts (and receive a high disclosure rating) to list in the U.S. or to hire a big four audit firm. Managers of such firms would face the risk of enforcement actions and exposure of inconsistencies by auditors. Equally, firms that operate in high enforcement countries or have faced prior enforcement actions face real risks from pursuing a cheap talk disclosure strategy.<sup>16</sup> These findings, therefore, lead us to conclude that at least for an important subset of the sample firms, their disclosure rating reflects a genuine effort to combat corruption.

The variables reflecting firms' exposure to corruption are also significant. The positive home country estimate implies that firms from less corrupt home countries disclose stronger anticorruption efforts. The negative estimate for average host geographic segment risk and the positive industry risk estimate indicate that firms operating in high-risk host segments and industries are more likely to disclose strong

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<sup>16</sup> The Siemens situation, albeit an extreme one, demonstrates the potential costs for firms facing enforcement actions. Siemens agreed to pay \$1.8 billion in fines to U.S. and German regulators and spent more than \$800 million in costs to investigate and respond to the enforcement actions.

anticorruption efforts. However, we interpret the average host segment effect with caution, as further unreported tests that interact the host segment risk variable with foreign sales intensity indicate that the effect is stronger for firms with modest foreign operations and insignificant for firms with sizable foreign operations.

Finally, only two of the control variables, the extent of foreign diversification and the percentage of closely held shares, are significant. The positive coefficient on % foreign sales indicates that internationally diversified firms report more anticorruption efforts. The negative estimate on % closely held shares implies that firms with dispersed ownership report fewer anticorruption efforts. Both these estimates are consistent with prior research. But it is worth noting that variables that have been shown to correlate strongly with corporate disclosures, such as firm size and profitability, are insignificant in predicting disclosures of anticorruption efforts, perhaps because anticorruption disclosures are different to other forms of disclosure, or because the sample comprises only very large firms.

Overall, the results are consistent with firm disclosures being strongly related to enforcement and monitoring costs and with exposure to corruption risk. The enforcement and corruption estimates suggest that the disclosure ratings do not simply reflect cheap talk, as firms that choose to list on U.S. exchanges, hire big four audit firms, and that are subject to strong home country enforcement face real costs from “padding” their anticorruption disclosures.

#### ***4.2. Subsequent Corruption Allegations and Disclosure Ratings***

Table 4 shows coefficient estimates for the relation between the residual of anticorruption efforts and subsequent allegations in the media about corruption. The table presents the results for three different years, 2008, 2009 and 2010. Across all three models, the coefficients on residual (abnormal) disclosure ratings are negative and significant indicating that firms with abnormally high anticorruption disclosure ratings have fewer subsequent allegations of corruption. The 2008 coefficient on RES\_DRD indicates that a one standard deviation increase in abnormal anticorruption disclosure decreases the number of corruption articles by 1.5, a decrease of 15%. The respective economic effect for 2009 is -18%, and for 2010 is -46%, although this last effect is less statistically reliable.

The coefficients on the control variables have the expected signs. Firms with more media attention have more corruption allegations, and firms with past corruption allegations tend to have more future allegations. These results are consistent with the results of the previous section in that they suggest that anticorruption disclosures are not merely cheap talk but on average reflect genuine efforts by corporations to combat corruption.

### ***4.3. Sales Growth and Disclosure Ratings***

Results of tests of the relation between disclosure ratings and three-year ahead sales growth are presented in table 5. Because of missing segment reporting the sample decreases to 350 firms. The table reports average segment sales growth rates from 2007 to 2010 (after the ratings were constructed) for firms with residual disclosure ratings (estimated using the model discussed above) that are above or below the median, and in

geographic segments with high and low corruption risk. Table 5a reports results when segment risks are classified relative to the sample median, maximizing the spread between segment risk categories. Table 5b reports results using a benchmark that rates geographic segment risks as high or low for each firm, based on its median segment risk. This ensures that firm observations are equally represented across each country/regional category and that the influence of other firm characteristics is mitigated. This approach is equivalent to holding the firm constant and identifying changes in sales growth across segments with different corruption levels.

The findings are similar using both approaches. In low-risk segments, the sample firms with abnormally low and high disclosure ratings have comparable future sales growth rates (-2.3% and -2.9% in panel A, and -2.1% and -3.5% in panel B). Thus, in low risk segments, firms' reporting of anticorruption efforts appears to have little impact on their subsequent sales growth. As an aside, the weak sales growth rates for the sample firms during sample period (2007-2010) likely reflect the economic downturn that affected developed economies during these years.

In contrast, the future segment sales growth rates for firms with abnormally high and low disclosure ratings diverge sharply in high-risk countries/regions. Panel A shows that firms with abnormally high ratings show sales growth of only 0.8%, compared to 16% for those with low ratings. A differences-in-differences test, comparing this difference to that for low-risk segments, is statistically and economically significant. This result is confirmed in panel B, where future sales growth is -2.1% for firms with abnormally high disclosure ratings versus 11% for firms with abnormally low ratings. Recall that this test assigns segments to high/low-risk categories based on each firm's

regions of operation. It therefore controls for any self-selection that occurs in firms' decisions of where to operate.

Panel C repeats the analysis using a regression framework that allows us to control for past sales growth. Prior research indicates that sales growth exhibits mean reversion over time (see Palepu and Healy, 2008), consistent with the existence of competitive forces and entrepreneurial activity. The significant negative estimate for lagged sales growth confirms that sales growth mean reverts over time. However, importantly, the results of interest to this paper remain unchanged. In high-risk regions, firms with low disclosure ratings grow faster. In the first column that mirrors the methodology in Panel A, the growth premium is 17.4%. In the second column that mirrors the methodology in Panel B and controls for firm fixed effects, the growth premium is 16%.

It is worth noting that, since these findings use residual, rather than total disclosure ratings, they cannot be attributable to differences in country or industry risk exposures, or to differences in enforcement or monitoring effects across the sample firms. Also, the persistence of the sales growth differences when segments are classified as high/low risk using within firm comparisons implies that the findings are not attributable to particularly high and low disclosure firms electing to operate in countries with different exposure to corruption.

We interpret the findings as indicating that firms that report higher than expected anticorruption efforts enforce these standards in high-risk countries and pay a price in the form of lower sales growth rates than peers with unexpectedly low disclosure.

#### *4.4. Profitability, Sales Growth and Disclosure Ratings*

Table 6 reports estimates of the relation between performance and abnormal disclosure. We are able to collect data on changes in profitability margins and sales growth in high and low corruption countries for 250 firms. The net margin on incremental sales is positively related to sales growth in low-risk countries and negatively related to growth in high-risk countries. The magnitudes of the estimated coefficients are economically interesting. The estimates suggest that an increase in sales by 10%, in low risk countries increases ROS by 13 basis points. In contrast, a 10% increase in sales in high risk countries, decreases ROS by almost 14 basis points. Increasing the scale of the operations generates a profitability premium in low risk countries, but damages profitability margins in high risk countries. The results are similar when the dependent variable is the change in ROE. A 10% increase in sales increases ROE by 17 basis points in low risk countries, but decreases ROE by 7 basis points in high risk countries.

However, the financial implications of corruption differ when we interact high-risk country sales growth with a dummy variable for firms with high abnormal anticorruption disclosures. In this model, the estimate for sales growth in high corruption countries, which isolates the effect for firms with abnormally low anticorruption disclosures, continues to be negative and significant. The estimates imply that for these firms, a 10% increase in sales in high corruption countries is accompanied by declines in ROS and ROE of around 20 to 21 basis points.

But the interaction effect for firms with high residual anticorruption efforts and sales growth in corrupt countries is positive and significant. The sum of the two estimates, which represents the overall sales effects for the high disclosure firms, is

insignificant. Firms with high anticorruption efforts that grew sales in high-risk markets, therefore, did so without damaging their profitability. For countries where corruption is low, sales growth has a similar impact on net profit margins or ROE for both high and low disclosure firms.

The findings, therefore, suggest that low disclosure firms grow businesses in high-risk countries at the cost of reducing their profitability margins. One potential explanation for this pursuit of less profitable growth is that these firms perceive that high-risk markets are those with the highest growth, and that the pursuit of growth will eventually pay off. Pursuing growth in these markets is therefore viewed as an investment that permits the firm to build market share and hopefully recover its profitability in the market when it matures.

It is also noteworthy that the difference in profit margins associated with sales growth in high risk markets for firms with positive and negative residual disclosures is roughly 118 basis points. This difference is within range of the average bribe paid by Siemens on corrupt transactions of three percent of the contract amount, suggesting that bribes are likely to be an important factor underlying the lower profitability of low disclosure firms.

## **5. Conclusion**

Our findings indicate that 2007 public disclosures of companies' anticorruption policies are not merely cheap talk. Firm disclosures are predictably related to enforcement and monitoring costs, such as home country enforcement, U.S. listing, big four auditors, and prior enforcement actions. They also reflect industry and country corruption risks. In

addition, firms with abnormally high anticorruption ratings have a lower frequency of subsequent allegations of corruption in the media, suggesting that disclosures reflect their commitment to fighting corruption.

The financial implications of fighting disclosure are more nuanced. Over the following three years, firms with abnormally low disclosure have roughly 15% higher sales growth in corrupt country markets than their high disclosure peers. But this higher growth is accompanied by lower profit margins and ROEs. For firms with abnormally low disclosure ratings, we find a negative relation between changes in ROS and ROE and sales growth in high risk countries. No such decline occurs for high disclosure firms, or for either disclosure type in markets where corruption is low.

The evidence therefore suggests that firms with high disclosure on their anticorruption efforts are committed to fighting corruption. The policies and enforcement actions reflected in their disclosures help to protect their public reputation and profitability, but at the cost of slower sales growth in high corruption risk markets.

There are a number of caveats worth discussing that apply to our results. First, the sample used in this study includes primarily large multinational firms. Therefore, our results might not transfer to a sample of small local firms. Future work could examine the generalizability of our results. Second, we test the effect on sales growth and profitability over the next three years. The effect of anticorruption efforts on sales growth and profitability could be different for longer time horizons. Again, this is an interesting avenue for future research.

Not surprisingly, given the formative stage of firm-level research on corruption, our findings raise many more questions for future study than we are able to answer. For

example, what factors, other than monitoring/enforcement costs and risk exposures, explain the differences in firms' level of disclosure and commitment to fight corruption? Does the level of competition from local firms influence multinational firms' disclosures and corruption policies in their countries? Does the pursuit of growth (at the cost of profitability) ultimately pay off for aggressive low disclosure firms? What are the most effective methods of combatting corruption at the firm level? What role do individual leaders play in setting company policies and disclosures on anticorruption efforts?

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Table 1a  
Distribution of Transparency International sample by country

Country	Top 250 companies	High risk sectors	High export countries	Omitted	Total
Australia	6	0	0	1	5
Austria	0	2	0	0	2
Belgium	3	0	7	0	10
Bermuda	1	0	0	1	0
Brazil	4	2	0	0	6
Canada	8	9	4	1	20
China	7	2	21	2	28
Denmark	2	0	0	0	2
Finland	1	3	0	0	4
France	19	7	4	1	29
Germany	15	2	23	1	39
Hong Kong	2	2	6	0	10
India	1	3	1	1	4
Ireland	2	1	0	0	2
Italy	7	1	12	1	19
Japan	22	12	7	2	39
Malaysia	0	0	8	0	8
Mexico	2	1	7	1	9
Netherlands	10	1	9	1	19
Norway	3	1	0	0	3
Russia	5	5	0	1	9
Saudi Arabia	1	0	2	1	2
Singapore	0	2	7	0	9
South Africa	0	0	5	0	5
South Korea	5	2	3	2	8
Spain	6	5	0	1	10
Sweden	4	4	2	1	9
Switzerland	8	2	0	1	9
Taiwan	0	1	9	0	10
Thailand	0	1	0	0	1
United Kingdom	21	3	6	0	30
United States	87	33	0	0	120
Total	250	107	143	20	480

Table 1b  
Distribution of Transparency International sample by sector

<b>Sector</b>	<b>Top 250</b>	<b>High risk sectors</b>	<b>High export countries</b>	<b>Omitted</b>	<b>Total</b>
Aerospace & defense	5	14	0	0	19
Banking	51	0	0	2	49
Business services & supplies	1	0	2	0	3
Capital goods	2	18	2	0	22
Chemicals	5	0	10	0	20
Conglomerates	10	0	10	0	20
Construction	5	15	4	0	24
Consumer durables	10	0	1	1	18
Diversified financials	16	0	1	1	16
Drugs & biotechnology	12	0	4	1	15
Food, drink & tobacco	7	0	13	1	19
Food markets	2	0	6	1	7
Healthcare equipment & services	4	0	2	0	6
Hotels, restaurants & leisure	1	0	2	0	3
Household & personal products	2	0	6	1	7
Insurance	24	0	0	0	24
Basic materials	10	30	7	1	46
Media	5	0	4	1	8
Oil & gas operations	23	17	8	2	46
Retailing	6	0	3	1	8
Semiconductors	2	0	5	0	7
Software & services	3	0	1	0	4
Technology hardware & equipment	9	0	6	1	14
Telecommunications services	13	7	10	1	29
Trading companies	3	0	3	0	6
Transportation	5	0	3	0	6
Utilities	14	6	15	5	30
<b>Total</b>	<b>250</b>	<b>107</b>	<b>143</b>	<b>20</b>	<b>480</b>

Table 2  
Summary statistics

Variable	Mean	St. Dev.	Q3	Median	Q1
Disclosure of anticorruption efforts	16.90	12.00	26.00	19.00	3.75
ROE	27.7%	19.1%	34.6%	25.3%	17.6%
Size	17.51	1.57	18.40	17.24	16.49
Percent foreign sales	35.8%	31.0%	59.7%	31.8%	4.2%
No. of segments	1.35	0.60	1.79	1.39	1.10
Percent closely held shares	23.4%	25.0%	36.3%	11.8%	2.2%
Big 4 auditor	0.89	0.31	1.00	1.00	1.00
U.S. Listing	0.34	0.47	1.00	0.00	0.00
Corruption enforcement	0.02	0.15	0.00	0.00	0.00
High risk industry	0.45	0.50	1.00	0.00	0.00
Home country corruption rating	1.41	0.80	1.85	1.77	1.21
Home country corruption enforcement	1.84	2.39	3.97	0.45	0.00
Average host segment corruption rating	1.25	0.70	1.77	1.37	0.77

Disclosure of anticorruption efforts is an index of the public disclosures provided by a firm about its anticorruption efforts. The specific measures comprising the index are presented in the Appendix. ROE is net income over beginning period shareholder's equity for fiscal year 2006. Size is the natural logarithm of total assets at the end of fiscal year 2006. Percent of foreign sales is sales outside the home country deflated by total sales for fiscal year 2006. No. of segments is the number of two-digit SIC sectors in which the firm operates for fiscal 2006. Percent of closely held shares is the percentage of shares that are held by investors that own at least 5% of the shares at the end of fiscal year 2006. Big 4 auditor is an indicator variable for firms audited by a Big 4 accounting firm at the end of fiscal year 2006. U.S. listing is an indicator variable that takes the value one for firms listed as ADRs in the US at the end of fiscal year 2006. Corruption enforcement is an indicator variable that takes the value one if a firm has been prosecuted for a corruption scandal in 2005 or 2006. High risk industry is an indicator variable that takes the value one if a company is operating in one of the following industries during fiscal 2006: aerospace and defense, oil and gas, basic materials, capital goods, construction, telecommunications, and utilities. Home country corruption rating is the World Bank's 2006 rating of a firm's home country corruption. Home country corruption enforcement is the number of prosecutions in the home country in 2006 and 2005, deflated by the economic importance of the country measured by its share of world exports in 2006. Average host segment rating is the weighted average of corruption ratings for a firm's non-home geographic segments, where the weights are the segments' shares of total company sales. Segment corruption ratings are computed by taking the weighted average World Bank 2006 rating for each country that makes up a segment, where the weights are the countries' shares of segment GDP.

Table 3  
Determinants of disclosure of anticorruption efforts

Variable	Estimate	t statistic
Intercept	0.0000	0.00
ROE	0.0428	0.96
Size	0.0630	1.48
Percent foreign sales	0.1793	4.22***
No. of segments	0.0527	1.49
Percent closely held shares	-0.1047	-2.47**
Big 4 auditor	0.1315	3.74***
U.S. listing	0.1337	3.05**
Corruption enforcement	0.0879	3.39***
High risk industry	0.1133	2.81**
Home country corruption	0.2611	5.10***
Home country corruption enforcement	0.3572	8.48***
Host country corruption	-0.0986	-2.13**
Adjusted R-squared	41.6%	
N	480	

This table presents estimates from an OLS model where the dependent variable is ratings of firms' disclosures of anticorruption efforts. All independent variables are defined in Table 2 and are standardized to have a mean of zero and a standard deviation of one. Standard errors are robust to heteroscedasticity.

\*\*\*/\*\*/\* Significant at the 1, 5 and 10 percent level using a two-tailed test.

Table 4  
Relation between residual anticorruption disclosure ratings and subsequent corruption allegations

Parameter	CorruptArticles t=2008		CorruptArticles t=2009		CorruptArticles t=2010	
	Estimate	t statistic	Estimate	t statistic	Estimate	t statistic
Intercept	-4.4869	-2.14**	-1.5519	-1.24	-4.6882	-0.87
Res_DR (2007)	-0.1509	-2.27**	-0.1339	-2.13**	-0.5592	-1.75*
CorruptArticles (2007)	0.7167	9.62***	0.2831	12.15***	0.1952	3.91***
TotalArticles (year t)	0.0032	1.89*	0.0027	4.27***	0.0051	1.89*
Adj R-squared	51.6%		56.2%		22.2%	
N	480		480		480	

The dependent variable, CorruptArticles (2007), is the number of media articles that appear in major business publications and allege that a company has been involved in a corruption scandal during calendar year 2007. Res\_DR (2007) is the residual from the OLS model estimated in Table 3. Larger values represent companies with more transparency around their anticorruption efforts. TotalArticles (year t) is the number of articles that a company appears in major business publications. Standard errors are robust to heteroscedasticity.

\*\*\*/\*\*/\* Significant at the 1, 5 and 10 percent level using a two-tailed test.

Table 5

Relation between future sales growth rates (2007-2010) for sample firm geographical segments, ratings of segment corruption, and firm residual anticorruption disclosure ratings

Panel A: Average geographic segment sales growth from 2007 to 2010. Firms' geographic segments are classified as having high/low corruption risk if their corruption score is above/below the median for all sample firm segments.

		Residual anticorruption disclosure	
		Low	High
Geographic segment corruption	Low	-2.3%	-2.9%
	High	16.0%	0.8%
Differences-in-differences		Estimate 14.7%	p-value 0.015

N=1,185 geographic segments for 350 firms operating in 47 geographic regions

Panel B: Average geographic segment sales growth from 2007 to 2010. Firms' geographic segments are classified as having high/low corruption risk if their corruption score is above/below the median for the firm's own segments.

		Residual anticorruption disclosure	
		Low	High
Geographic segment corruption	Low	-2.1%	-3.5%
	High	11.0%	-2.1%
Differences-in-differences		Estimate 11.7%	p-value 0.014

N=1,137 geographic segments for 303 firms operating in 46 geographic segments

Panel C: Regression analysis controlling for lagged geographic segment sales growth.

Variable	Model 1		Model 2	
	Estimate	t statistic	Estimate	t statistic
Intercept	0.2538	4.22***	-0.2453	-4.37***
$DCORR_{ij}^{LO}$	-0.2583	-4.59***	-0.1677	-2.87**
$DResD_i^{HI}$	-0.1739	-1.85*	-	-
$DCORR_{ij}^{LO} * DResD_i^{HI}$	0.1742	2.84**	0.1605	2.30**
$SG_{ijt-1}$	-0.2430	-3.53***	-0.2677	-3.04***
Firm fixed effects	No		Yes	
Adj R-squared	4.75%		29.21%	
N	1,074		1,029	

The dependent variable is sales growth ( $SG_{ijt}$ ) between 2007 and 2010 for the sample firms' geographic segments.  $DCORR_{ij}^{LO}$  is a dummy variable that takes the value one if the geographic segment's corruption rating is low, and otherwise is zero.  $DResD_i^{HI}$  is a dummy variable that takes the value one if the firm has a residual disclosure rating above the sample firm median, and is otherwise zero.  $SG_{ijt-1}$  is sales growth between 2004 and 2007 for the sample firm's geographic segments. Standard errors are robust to heteroscedasticity and clustered at the firm level. In Model 1 firms' geographic segments are classified as having high/low corruption risk if their corruption score is above/below the median for *all sample firm* segments. In Model 2 geographic segments are classified as having high/low corruption risk if their corruption score is above/below the median for *the firm's own* segments. \*\*\*/\*\*/\* Significant at the 1, 5 and 10 percent level using a two-tailed test.

Table 6

Relation between changes in profitability and sales growth for firms with high/low residual anticorruption disclosure ratings

Variable	$\Delta$ ROS				$\Delta$ ROE			
	Estimate	t Stat	Estimate	t Stat	Estimate	t Stat	Estimate	t Stat
Intercept	0.0428	0.03	0.2381	0.15	-1.6735	-1.23	-1.2202	-0.73
$DResD_i^{HI}$			-0.4055	-0.42			-0.9360	-0.54
$SG_i^{LO}$	1.2995	3.01**	1.2103	1.58	1.6888	2.31**	1.3373	1.10
$SG_i^{HI}$	-1.3674	-3.61***	-1.9556	-3.45***	-0.7022	-1.22	-2.1027	-2.69**
$SG_i^{LO} * DResD_i^{HI}$			0.1487	0.16			0.5706	0.38
$SG_i^{HI} * DResD_i^{HI}$			1.1840	1.75*			2.8420	2.39**
Industry effects	Yes		Yes		Yes		Yes	
Adj R-squared	11.8%		11.9%		6.6%		7.1%	
N	250		250		250		250	

Dependent variable is the change in return on sales (Return on Sales) or return on equity (ROE) between 2007 and 2010.  $DResD_i^{HI}$  is a dummy variable that takes the value one for firms that have residual anticorruption disclosure ratings (estimated using the model in Table 3) higher than the median sample firm, and otherwise zero.  $SG_i^{LO}$  and  $SG_i^{HI}$  are the sales growth rates for geographic segments with low/high corruption ratings respectively. \*\*\*/\*\*/\* Significant at the 1, 5 and 10 percent level using a two-tailed test.

## Appendix

### Factors used by TI to rate companies' disclosures on their anticorruption efforts

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#### STRATEGY (maximum 10 points)

- An overall code of conduct or statement of principles including a reference to antibribery (2)
- Membership of key stakeholder initiatives with an anticorruption component (Global Compact, PACI, various sectoral initiatives, etc.) (3)
- A specific corporate antibribery or anticorruption policy (2)
- The extent of the application of this policy to employees, partners and others (3)

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#### POLICY (maximum 15 points)

- Antibribery policy commitment (5)
- Prohibition of facilitation payments (3.5)
- Regulation of inappropriate giving and receiving of gifts by employees (2.5)
- Regulating and making transparent political contributions (2)
- Commitment to making lobbying activities transparent (2)

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#### MANAGEMENT SYSTEMS (maximum 25 points)

- Requirement for business partners compliance with the company's anticorruption approach, including due diligence and training of partners, as appropriate (5)
- Training to employees and agents and clear communication of company policies, including in indigenous languages, as appropriate (5)
- Existence of a whistleblower policing and employee help/guidance system, including non-victimization provisions (5)
- Existence of review and verification systems to monitor corruption related issues and breaches, and procedures to act against employees involved, including the external verification/auditing of these systems (5)
- Reporting of relevant Key Performance Indicators (KPIs), including the number and nature of complaints, the number of disciplinary actions for corruption and bribery, and the extent of bribery-related training (5)

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Source: Transparency International, Transparency in Reporting on Anticorruption: A Report on Corporate Practices, 2009