CAUSES AND CONSEQUENCES OF FIRMS' SELF-REPORTED ANTICORRUPTION EFFORTS

Paul Healy and George Serafeim*
Harvard Business School
November 2012

Abstract

We use Transparency International's ratings of self-reported anticorruption efforts for 480 corporations to examine factors underlying firms' efforts and their consequences. We find that firms with high anticorruption efforts are domiciled in countries with low corruption ratings and strong anticorruption enforcement, operate in high corruption risk industries, have recently faced a corruption enforcement action, employ a Big Four audit firm, and have a higher percentage of independent directors. Controlling for these effects, we find that firms with abnormally low anticorruption efforts have relatively higher subsequent media allegations of corruption. They also report higher future sales growth and show a negative relation between profitability change and sales growth in high corruption geographic segments compared to firms with high anticorruption efforts. The net effect on valuation from sales growth and profitability is close to zero. We conclude that, on average, firms' self-reported anticorruption efforts reflect real efforts to combat corruption and are not merely cheap talk.

* Paul Healy is a Professor of Business Administration at Harvard Business School, and George Serafeim is an Assistant Professor of Business Administration in Harvard Business School. We are grateful to Transparency International, in particular Robin Hodess and Deborah Hardoon, for providing the data for this study. We also wish to thank Barbara Esty, Kathleen Ryan and James Zeitler for research assistance with the media and governance data. Many thanks go to anticorruption experts at PwC and Siemens for helpful conversations around the importance of transparency in anticorruption efforts. Finally we are grateful for comments received by our editors SP Kothari and Rebecca Henderson, Robert Eccles, Eddie Riedl, Joe Weber (discussant), Gwen Yu, and participants at the HBS International Seminar, Boston University, Cornell University, and the HBS Corporate Accountability Reporting Conference. The project was supported by financial assistance from the Department of Faculty Research and Development of the Harvard Business School. Contact emails: Paul Healy phealy@hbs.edu, George Serafeim gserafeim@hbs.edu.

1. Introduction

Corruption is increasingly viewed as a significant impediment to economic development.[1] 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 bribes paid by individuals and firms to the public sector amount to $1 trillion per year globally, 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 to be deepened by studying the phenomenon at the firm level, where many questions remain unanswered. In this study we examine some of those questions using Transparency International's (TI) ratings of corporations' self-reported strategies, policies, and management systems for combatting corruption. Our sample comprises 480 of the world's largest corporations.

We use the ratings to pose four related questions. First, what factors are associated with firms' disclosed anticorruption efforts? Second, are higher reported anticorruption efforts

[1] The World Bank defines corruption as the misuse of public office for private gain. In this paper we focus on situations 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. However, corruption also includes theft of government assets and manipulating election outcomes, which are beyond the scope of this paper.

accompanied by fewer subsequent allegations of corruption? Third, is there any relation between firms' reported anticorruption efforts and their subsequent financial performance? Finally, because ratings reflect firms' disclosures of anticorruption efforts and not how those policies are actually enforced, do disclosures reflect genuine efforts to combat corruption or are they merely 'cheap talk'?

We argue that firms' disclosed anticorruption efforts are likely to be influenced by corruption norms in their home countries and industries, and in the non-domestic markets where they choose to operate. What is less clear is whether these country and industry factors increase or decrease firms' anticorruption efforts. Do firms that have elected to operate in high corruption countries and industries exert more anticorruption efforts or, given the perceived realities of doing business in these countries and industries, do they opt for weaker policies and systems?

Anticorruption efforts are also expected to be associated with legal and regulatory risks due to corruption. Although corruption is illegal in virtually all countries, enforcement varies markedly. Further, non-U.S. firms that choose to list in the U.S. subject themselves to the Foreign Corrupt Practices Act (FCPA) standards and enforcement, increasing their potential legal risk from enforcement actions. We therefore predict that firms subject to higher legal risks and costs associated with corruption are more likely to adopt and disclose stronger efforts to combat corruption.

Finally, we examine whether anticorruption disclosures are associated with effective governance. Managers of firms with independent and engaged board oversight may take anticorruption laws and enforcement seriously and adopt/enforce policies to deter corruption. Alternatively, some investors, boards and managers may jointly view corruption as an unavoidable cost of doing business in certain parts of the world, yet engage in cheap talk to

reduce regulatory costs.

Our results confirm many of the above predictions. Firms with higher reported anticorruption efforts are from less corrupt home countries and higher risk industries. In addition, they are more likely to operate in home countries with stronger enforcement of corruption laws, cross-list in the U.S., have experienced a recent corruption enforcement action, employ a big-four auditor, and have a higher percentage of independent directors. These findings are robust to inclusion of control variables that are associated with the quality and quantity of firm disclosure.

To test whether reported anticorruption efforts are associated with subsequent allegations of corruption, it is important to control for factors that determine firms' anticorruption efforts. Absent such controls, it would be difficult to disentangle whether differences in corruption allegations reflect variation in firms' anticorruption efforts, or for example, differences in their industry and country risk exposures. We therefore use residuals of the self-reporting model, which denote abnormally high or low reported anticorruption efforts, as our primary independent variable. In addition, since corruption allegations tend to be sticky, our tests control for prior corruption allegations. The findings show that firms with abnormally high reported anticorruption efforts have fewer media articles alleging corrupt activities in the next three years.

Our third test examines whether firms' reported anticorruption efforts are related to future performance in the high and low corruption geographic segments in which they operate. Our ideal research design would be to examine changes in performance for firms with an exogenous change in their anticorruption efforts. But we are constrained by having only one year of ratings data and are unaware of any exogenous change that would apply to the sample firms. As a result, we use anticorruption ratings for a single year and design tests to control for potentially endogenous factors that jointly affect firm performance and anticorruption efforts, such as

industry, country of origin, and past performance. We again use the residual of the reported anticorruption efforts as our independent variable of interest, thereby ensuring that the anticorruption independent variable is orthogonal to industry, country and past performance metrics included in the ratings model. In an effort to isolate the effect of anticorruption efforts on performance, we also use a differences-in-differences test to compare performance for firms with high and low residual anticorruption efforts in high and low corruption geographic segments.

To measure performance we use three-year ahead sales growth and return-on-equity (ROE). We find that in high corruption geographic segments, firms with low anticorruption efforts have significantly higher subsequent three-year sales growth than firms with high anticorruption efforts. This suggests that firms with high anticorruption efforts enforce their anticorruption policies and systems, leading to lower sales growth than firms with low anticorruption efforts. In contrast, future sales growth in low corruption geographic segments is not significantly different for firms with low and high anticorruption efforts. The differences-in-differences estimate of the three-year sales growth premium for low versus high anticorruption efforts in high versus low corruption geographic segments is between 12.3 and 15.9%, depending on how we classify geographic segments as high or low corruption.

For firms with low anticorruption efforts, we find a negative relation between three-year changes in ROEs and sales growth in corrupt geographic segments. Such is not the case for firms with high anticorruption efforts. Further, in low corruption geographic segments, we find no difference in the relation between change in ROE and sales growth for firms with high or low anticorruption efforts. These findings suggest that in high corruption geographic segments, firms with high anticorruption efforts enforce policies designed to combat corruption at the cost of lower growth but are able to defend their ROE on incremental sales in these markets. In contrast,

firms with low anticorruption efforts experience a decrease in ROE as they grow. To understand the combined sales growth and ROE effects on equity value we compare the impact of differences in ROEs and growth on value-to-book equity multiples for firms with high and low anticorruption efforts. The results indicate that, on average, the sales growth and ROE effects are offsetting, and there is little discernible valuation difference for the two subsamples.

Our overarching question is whether disclosed anticorruption efforts reflect a genuine commitment to combatting corruption or are merely "cheap talk." No single test conclusively answers this question. But our findings indicate that firms with high disclosed anticorruption efforts are more likely to purchase more costly forms of monitoring from high quality auditors, subject themselves to costly enforcement from U.S. exchanges and courts, and emanate from home countries where anticorruption laws are more effectively enforced. Further, they generate lower medium-term sales growth rates in more corrupt geographic segments. Anticorruption efforts by these firms therefore are not costless, making it difficult to reconcile all our findings with the hypothesis that the reported anticorruption efforts merely reflect cheap talk.

We recognize the inherent limitations of our tests and results. First, the TI ratings used in our study represent firms' reported anticorruption policies. As noted above, it is unclear whether the metric reflects companies' actual anticorruption efforts (as opposed to cheap talk). It is also possible that some firms with comprehensive anticorruption policies underreport their activities. One MNC covered in the TI survey did state that it chose not to disclose its strong anticorruption policies. Yet TI revealed that several years later this firm was investigated for corruption and found to have weak policies and controls. Anticorruption experts argue that disclosure itself is a "critical aspect of demonstrating commitment by companies to prevent, monitor and address corruption" (Transparency International, 2009). Consequently, we are less concerned about firms

underreporting their anticorruption activities than over-claiming.

Second, it is unclear whether tests of the relation between ratings and subsequent anticorruption allegations or performance should be linear, as reflected in our tests, or non-linear. To examine these questions, we re-estimate the models using management systems, which TI considers the most credible and effective component of the anticorruption ratings variable, as the only component of the anticorruption ratings variable, and using a quintile transformed anticorruption ratings variable. The results are similar to the primary findings reported in the paper.

Third, companies with high anticorruption efforts could deliberately avoid operating in particularly corrupt geographic segments as a way to lower corruption risk. Very different firms would then be represented in the high and low corruption geographic segments, raising a concern that unobservable firm characteristics, rather than differences in anticorruption policies, explain differences in sales growth and ROE across high and low corruption geographic segments. To mitigate this concern, we reclassify a given firm's operating geographic segments as high and low corruption relative to the median corruption rating using only the geographic segments in which the firm operates. This has the effect of holding the firm constant and ensuring that all firms are classified as operating in both high and low corruption geographic segments. The results on performance are similar to those reported above.

Fourth, our findings could arise if multinationals with high anticorruption ratings offer only differentiated high margin products in high corruption geographic segments, whereas firms with low anticorruption ratings offer a more comprehensive mix of products. These product mix differences could reflect differences in anticorruption efforts, as highly rated firms choose to offer differentiated products in high corruption geographic segments to increase their leverage

over buyers who request bribes. Alternatively, it could simply reflect differences in comparative advantage - firms with low-end products are better situated to compete in less developed (more corrupt) countries whereas firms with high-end products are better able to compete in more developed (less corrupt) countries. Both factors could explain the slower sales growth and higher profitability for high anticorruption firms in high versus low corruption geographic segments compared to firms with low anticorruption efforts.

To examine this explanation of our findings, we restrict the sample to undiversified firms in commodity businesses where products tend to be undifferentiated. These firms are less likely to have differences in product mix across high and low corruption geographic segments. We identify 72 firms that qualify as undiversified companies in commodity businesses and find results that are similar to our main analysis.

Finally, many of our firms are U.S. listed and hence subject to the FCPA. Given the higher levels of enforcement of these laws, such firms may report higher anticorruption policies and have higher ratings in an effort to reduce regulatory penalties for corruption infractions. To test this possibility, we re-estimate the models using only firms with U.S. equity and/or fixed income listings.[2] The findings are similar to those reported above.

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, limitations and additional tests are shown in section 5, and conclusions in section 6.

2. Prior Research on Corruption

Academic research on corruption has typically focused on studying its macro causes and

[2] This test also mitigates a concern about the quality of the reported accounting numbers. By restricting the sample to US-listed firms we are more likely to observe accounting numbers of higher quality (e.g. lower earnings management). Moreover, the accounting numbers are more comparable because, for most firms, they are prepared under US GAAP.

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.[3] 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;[4] cultural variables, like low levels of generalized trust, non-Protestant populations, and greater acceptance of hierarchy;[5] 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.[6]

Recent studies have examined 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, Demirgurc-Kunt, and Maksimovic (2005) show that firm growth is constrained in countries where there is corruption among bank officials. Khwaja 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

[3] See for example Hall and Jones 1999; Kaufmann et al. 1999; Knack and Keefer 1995; Rock and Bonnett 2004; You and Khagram 2005; Anoruo and Braha 2005.
[4] See for example Elliott 1997; Ades and Di Tella 1997, 1999; Adsera et al. 2000; Montinola and Jackman 2002; Gerring and Thacker 2005.
[5] Studies include, among others, La Porta et al. 1997; 1999; Uslaner 2004; Treisman 2000; Lipset and Lenz 2000; Gerring and Thacker 2005; Anderson and Tverdova 2003.
[6] Studies include, among others, Ades and Di Tella 1999; Leite and Weidemann 1999; Sandholtz and Gray 2003; Gerring and Thacker 2005; Treisman 2000; Swamy et al. 2001.

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) completed a study to rate firms' self-reported anticorruption efforts. The specific rating system used to assess a company's anticorruption efforts is presented in the Appendix. The areas covered were based on an anti-bribery code developed by TI in collaboration with leading companies and other stakeholder groups.

The information is separated into three categories: strategy (valued at 10 points), policies (valued at 15 points), and management systems (valued at 25 points). Strategy information covered whether a firm disclosed an anticorruption policy, its membership of anticorruption initiatives (such as the World Economic Forum Partnering against Corruption, UN Global Compact, or International Chamber of Commerce Anticorruption Commission), and the extent of its application of the policy. Policy information included company 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. TI investigators allocated half of the total points to management systems because they regarded these as likely to be more credible and effective than the policy and strategy segments, which could more easily be classified as public relations.

A highly-rated company typically had a code of ethics and an anti-bribery code, was a member of one or more anticorruption initiatives, had explicit policies prohibiting bribery and kickbacks, provided clear guidelines on the giving and receiving of gifts and political contributions, was transparent about lobbying activities, communicated and provided training on their policies to employees and agents, had a robust reporting system in place with protection for whistleblowers, regularly reviewed its policies and acted on breaches, and reported a range of key performance indicators.

3.2. Sample

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^{th} to 20^{th} 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^{st} to 25^{th} largest export countries.

Of the initial sample of 500 firms, 14 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 eliminate 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. Comparing these numbers to the contribution of each country to world GDP in 2007, U.S., U.K. 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). TI investigators did not collect information from the company's intranet

or internal systems. 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 Anticorruption Ratings

Our first test examines factors that are associated with firms' anticorruption ratings. These include (i) factors representing regulatory enforcement and external monitoring of business practices associated with corruption and bribery, (ii) factors that reflect inherent corruption risk, (iii) governance factors and (iv) a variety of controls.

Regulatory Enforcement and Monitoring Variables

Regulatory enforcement and monitoring variables include use of a Big Four auditor, U.S. listing of equity or fixed income claims, firm home country enforcement, and prior enforcement actions against the company. We hypothesize that there will be a positive association between TI ratings and these regulatory enforcement and monitoring variables, either because firms undertake policies to lower these risks or because they engage in cheap talk to pretend they are paying attention to corruption risks to reduce penalties if caught. For example, the U.S. FCPA prohibits paying bribes to a foreign official to obtain or retain business, and requires firms to keep records that accurately reflect their business transactions and to maintain effective internal controls. In determining whether a firm has violated the FCPA and in determining penalties the DOJ and

SEC assess whether the firm has anticorruption policies and procedures in place.[7] So firms with exposure to the U.S. FCPA might be more likely to have standard boilerplate anticorruption policies. The specific variables used to reflect the strength of regulatory enforcement and monitoring are as follows:

Big Four Auditors. To protect their own reputations and litigation risk, Big Four audit firms are expected to demand stronger anticorruption standards and disclosures by the companies they audit. Consequently, we predict that the anticorruption ratings will be positively related to Big Four audit firm selection. The Big Four audit variable is an indicator variable that takes the value one if the sample firm has a big-four auditor at the end of 2006 and zero otherwise. We collect this data item from Worldscope.

U.S. Listing. Non-U.S. firms cross-listed on the New York Stock Exchange and NASDAQ, or trading public debt in the U.S., are required to adhere to the U.S. FCPA and are subject to U.S. enforcement of the Act, which has historically been the strongest in the world. Indicatively, the United States pursued 75% of all foreign bribery enforcement actions between 1977 and 2011. Such firms are therefore expected to have reported strong efforts to combat corruption to avoid the regulatory costs of enforcement actions. U.S. listing is an indicator variable that takes the value one if the sample firm is a non-U.S. firm that is listed as an ADR on the NYSE or NASDAQ, or trades public debt at the end of 2006, and zero otherwise.[8] We collect this data item from Worldscope.

---

[7] For example, in a settlement with Titan, the DOJ-Titan Agreement noted that: "In its 23 years of existence prior to 2004, Titan has never had a FCPA compliance program or procedures. Titan's only related 'policy' is a statement in Titan Corporation's Code of Ethics, which all Titan employees were required to sign annually, stating 'employees must be fully familiar with and strictly adhere to such provisions as the foreign Corrupt Practices Act.' Titan did not enforce that policy nor did it provide its employees with any information concerning the FCPA."
See: http://www.nationaldefensemagazine.org/archive/2005/September/Pages/ethics_corner3132.aspx

[8] 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.

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 measured by the number of prosecutions in the home country in 2005 and 2006, deflated by its share of world exports (representing its economic importance).[9] We obtain this data from the OECD enforcement report on bribery and corruption.

Prior Enforcement Actions against Company. Companies that have faced prior enforcement actions for bribery or corruption are expected to have higher 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 before 2007 and zero otherwise. We obtain this data from TI.

Corruption Risks

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 self-reported anticorruption efforts, it is difficult to predict whether their effect will be positive or negative. Firms that operate in high corruption home or host geographic segments could opt for extensive self-reporting of their anticorruption efforts to communicate their commitment to internal and external stakeholders and reduce risks, or as part of a public relations effort. Alternatively, such firms could provide little information on their efforts to avoid drawing attention to potential corruption risks and to increase employees'

[9] 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 in each country.

flexibility in negotiations in difficult markets. The specific variables used to reflect exposure to corruption are as follows:

Industry Risk. A company's exposure to corruption is likely to be determined by the industry in which it operates. Industries that negotiate with governments or 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 on 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.

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 transparency. Home country corruption is the 2006 World Bank corruption rating for sample firms' country of origin.[10]

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 the countries' relative GDP. We then compute the weighted average rating for all host geographic segments for a firm by weighting each segment rating by its share of total company sales.

[10] 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.

Governance Variables

Corporate boards are responsible for overseeing firms' internal controls and compliance programs, including those related to deterring corruption. Firms with more effective board governance are therefore likely to self-report and enforce more anticorruption efforts than those with weak governance. Of course some investors, boards, and managers may collectively view corruption as an unavoidable cost of doing business in certain countries. Such firms may report extensive anticorruption efforts to reduce regulatory costs, but actually do little to discourage it. Consistent with prior research, we measure governance effectiveness by board independence and engagement. The specific variables are as follows:[11]

Percent of Independent Board Members. Prior research (e.g. Baysinger and Butler 1985) has measured board independence by the percentage of directors classified by the board as independent. Independent directors are defined as those who have not worked for the company as an officer, employee or consultant, and have no other relationship with the company that the board perceives might impair her judgment. Data on the percentage of independent directors on the board in 2006 is collected from Bloomberg.

CEO-Chairman Duality. A board whose Chairman also happens to be the current CEO is perceived to be less independent than one whose Chair and CEO are separated (see Brickley, Coles, and Jarrell, 1997; and Rechner and Dalton, 2006). Opponents of CEO-Chairman duality argue that it concentrates power in a single individual and reduces the checks and balances required for effective governance. Data on CEO-Chairman duality in 2006 is collected from

[11] We also tried including other variables of governance quality such as board size, women on board, and board age. The sample decreased further when we included these variables and none of the governance variables loaded in the specification with a significant coefficient.

Bloomberg, and used to construct an indicator variable that takes the value one for firms with CEO-Chairman duality and zero otherwise.

Board Meeting Attendance. Finally, boards that have a higher level of director attendance of board meetings are perceived to be more active and engaged, leading to improved governance (Sonnenfeld 2002). Data on the percentage of directors attending board meetings in 2006 is collected from Bloomberg.

Control Variables

Finally, we include variables to control for different disclosure practices across firms. Specifically, we control for firm size, profitability, ownership structure, diversification, analyst following, forecast error, quality of accounting standards followed by the firm, and country disclosure regulations that other studies have found to be related to firm disclosure policies:

Firm Size. If there are economies of scale at the firm level in developing anticorruption systems, 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.[12]

ROE. Prior disclosure studies conclude that self-reporting increases with profitability (see Healy, Hutton and Palepu 1997, Miller 2002), suggesting a positive relation between anticorruption ratings and ROE. In addition, sales reps at more competitive (and hence less profitable) firms may be more at risk for paying bribes to generate internal sales targets and achieve bonuses. It is unclear a priori whether such firms respond to this risk by enhancing or de-emphasizing anticorruption efforts. We therefore include firm return on equity (ROE) in the model but

[12] Using sales or market capitalization, as a measure of firm size, yields qualitatively similar results.

without a prediction of its relation to anticorruption efforts. ROE is net income deflated by beginning-of-year shareholders' equity for 2006.

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.

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.

Analyst Following and Forecast Error. Lang and Lundholm (1993; 1996) find that firms with more disclosure have higher analyst following and lower absolute forecast errors. To control for this effect, we calculate analyst following as the number of analysts issuing earnings forecasts for a firm during the 2006 fiscal year. Forecast error is the absolute difference between actual EPS and consensus forecast EPS calculated one month before the fiscal year end of 2006. We divide the absolute difference with stock price at the end of 2005 to normalize the error for scale differences across firms.

Quality of Accounting Standards. Prior studies have found that firms following US GAAP or IFRS have more comprehensive disclosures, with both standards considered high quality. We construct an indicator variable that takes the value of one if a firm follows US GAAP or IFRS in 2006.

Home Country Disclosure. Countries differ in terms of disclosure regulations. While we are aware of no specific disclosure regulations around anticorruption systems, firms domiciled in countries with greater disclosure requirements are likely to provide additional information on their anticorruption efforts. We use the country disclosure variable calculated by La Porta, Lopez-De-Silanes and Shleifer (2006) for each sample company's home country as a measure of the extent of country disclosure requirements.

English Reporting. Although TI employed multilingual investigators, it is possible that the scores of some companies with primarily non-English disclosures are downward biased. In addition, English-speaking countries tend to place a greater emphasis on transparency (see La Porta, Lopez-De-Silanes and Shleifer 2006). We therefore include as a control an indicator variable that takes the value of one if English is the primary language used in a company's reporting and zero otherwise.

Descriptive statistics for the above variables are presented in panel A of table 2. The sample firms are large and highly profitable. The median firm has assets valued at $30 billion,[13] is followed by 20 analysts, and has a return on equity of 25.3 percent. It operates in 4 business segments,[14] 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 US. Twelve percent of the firms in the sample had corruption enforcement actions in the past. On average, the sample companies' host countries are more corrupt than their home countries. In terms of governance, on average 68 percent of the sample firm's directors are independent, 39 percent have CEO-Chairman duality, and there is an 87 percent director board attendance rate. Seventy percent of the sample firms report their accounting information in

[13] Calculated as the exponent of 17.24.
[14] Calculated as the exponent of 1.39.

accordance with IFRS or US GAAP, and 46 percent have English as their primary language to communicate information.

Table 3 reports univariate correlations between the variables. The anticorruption efforts variable has a strong positive correlation with the Big Four auditor, high-risk industry, home country corruption, accounting standard quality, home country disclosure standards, English reporting variables, board independence, CEO duality and a negative relation with the percentage of closely held shares and board meeting attendance. The estimates also indicate that there is a high correlation between a firm's industry, home country, and host country corruption risks.

3.4. Anticorruption Efforts and Subsequent Corruption Allegations

To test whether anticorruption policies are associated with subsequent allegations of corruption, it is important to control for factors that influence firms' anticorruption activities and disclosure, such as the industries and countries in which they operate, and their disclosure propensity. Absent such controls, it would be difficult to disentangle whether differences in corruption allegations reflect variation in firms' anticorruption policies, or for example, differences in their industry and country risk exposures, monitoring, enforcement, governance and transparency. We therefore use residuals of the self-reporting model, which denote abnormally high or low reported anticorruption efforts, as our primary independent variable. This variable is by construction orthogonal to the country, industry, and firm-level variables that are included in the self-reporting model.

To measure subsequent allegations of corruption, we collect data from Factiva on the number of articles in major news and business publications where a sample company is mentioned in conjunction with allegations of corruption. For each article on its database, Factiva indexes the names of the companies referenced in the article as well as the subject matter. We

first identify the number of "Major News and Business Publications" articles that mention each sample company from 2008 to 2010, generating an average number of articles per company of 2,804 in 2010, 2,522 in 2009, and 2,437 in 2008. Restricting our search to articles from "Major News and Business Publications" increases our confidence that the allegations are not completely unsubstantiated.[15] We then conduct a second search of the identified articles for the sample companies to determine how many allege their involvement in corrupt activities. To do so, we search for the subject terms "Corruption", "Bribery", and "Financial Crime". As reported in panel B of table 2, 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. Half of the sample has zero articles that allege a company as being corrupt and 25 percent of the sample has more than 5 articles alleging corruption.

Because corruption allegations are likely to be sticky, our tests control for prior corruption allegations. In addition, we control for the overall number of major news articles for each firm, given wide differences in media coverage across sample firms. This resulting model to test the relation between corruption allegations and prior anticorruption efforts is as follows:

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

$CorruptArticles_{it}$ 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. $Res\_AC_{i,2007}$ is the firm's residual anticorruption disclosure rating in 2007 generated from the disclosure prediction model discussed in the previous section. $TotalArticles_{it}$ is the total number of media articles for the company in a given year.

[15] We exclude newswires to avoid inflation of the variables due to mechanical dissemination of articles.

We expect that sample firms' abnormal ratings will be negatively associated with future media allegations (i.e. β_1 is negative) either because the ratings capture effective efforts to combat corruption or because they affect scrutiny of firms' business practices by the business press. Companies with allegations of corruption in 2007 are expected to take actions to reduce any adverse effects of those charges, implying that corruption allegations will exhibit a mean reverting pattern and that β_3 will be positive and less than one.

3.5. Anticorruption Efforts and Subsequent Performance

Finally, we examine whether firms' reported anticorruption efforts are related to their subsequent performance. If ratings represent actual efforts to combat corruption, firms with high anticorruption efforts are expected to grow more slowly than peers with low anticorruption efforts in corrupt geographic segments, since they are less likely sell to corrupt customers. Alternatively, if their disclosures are merely cheap talk, high disclosed anticorruption efforts will have no effect on sales growth in high corruption geographic segments.

The relation between abnormally high anticorruption efforts and sales growth rates in low corruption geographic segments depends on whether firms with high anticorruption efforts generate incremental customer trust and as a result faster sales growth in those segments, or whether there is no such reputation effect. Of course, if ratings reflect only cheap talk, we expect no relation between ratings and sales growth rates in low corruption geographic segments.

The effect of anticorruption efforts on profitability is also ambiguous. If firms with high anticorruption efforts generate lower sales growth in corrupt geographic segments 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.[16] Moreover, the unintended consequences of fostering a corporate culture that tolerates corruption and bribery are potentially severe. Corrupt companies could face increased costs and lower revenues due to damaged corporate reputation and goodwill, employee theft, product quality and safety concerns, and inability to attract top human capital. We therefore make no a priori prediction about the relation between anticorruption efforts and profitability.

One challenge in examining whether firms' reported anticorruption efforts are related to future firm performance in high and low corruption geographic segments is that performance is likely to be correlated with industry, country, and firm characteristics that also affect firms' anticorruption efforts. Our research design uses three approaches to address this concern. First, we use residual (abnormal) reported anticorruption efforts as our independent variable of interest. Residual anticorruption efforts are constructed to be orthogonal to country, industry and firm characteristics included in the self-reporting model. Second, we use two approaches to classify geographic sectors as clean or corrupt. One is to classify geographic segments relative to the median corruption rating for all available countries. The second classifies geographic segments separately for each firm using the median geographic segment corruption rating for only those countries in which the firm operates. By controlling for the countries in which a firm elects to operate, our design mitigates the concern that unobservable differences in firms' selection of countries of operation generate differences in performance. Finally, our tests use a differences-in-differences approach, comparing differences in sales growth rates for firms with high and low residual anticorruption efforts across low and high corruption geographic segments.

[16] See http://www.justice.gov/opa/pr/2008/December/08-crm-1105.html. See also comments by Peter Solmssen, General Counsel for Siemens, in discussing corrupt transactions uncovered at Siemens, in Healy and Petkoski (2009).

To estimate the relation between subsequent sales growth rates, profits, and residual anticorruption efforts, 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 anticorruption efforts variable was constructed. We collect segment sales data from Worldscope.

Geographic Segment Corruption Risk: As discussed above, we classify segments as having high (low) corruption risk if their 2006 World Bank corruption score is higher than/equal to (lower than) the median of all geographic segments represented in our sample. Such an approach maximizes the difference between the high- and low-risk classifications, and allows us to compute geographic segment corruption risk for a larger sample. We also classify firms' geographic segments as having high (low) corruption risk if their corruption score is higher than/equal to (lower than) the median corruption score of geographic 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: Geographic segment profits are not consistently available for the sample firms and as a result we are unable to perform the same analysis as with sales growth using segment profitability data. We therefore measure firm changes in profitability subsequent to the construction of the anticorruption rating variable by the change in firm ROE from 2007 to 2010 (ΔROE), where ROE is defined as net income over beginning-of-year shareholder's equity.

As reported in panel C of table 2, mean and median sales growth for low corruption geographic segments are -3%. For high corruption geographic segments mean and median sales growth are 12 and 15% respectively. Mean and median ΔROE_i are -5%, largely due to the financial crisis that reduced the profitability of most businesses. To test the impact of segment sales growth on profitability, we estimate the following regression model:

$$\Delta ROE_i = \alpha + \beta_1 Res\_AC_i^{HI} + \beta_2 SG_i^{LO} + \beta_3 SG_i^{HI} + \beta_4 Res\_AC_i^{HI} * SG_i^{LO} + \beta_5 Res\_AC_i^{HI} * SG_i^{HI} + \varepsilon_i$$

ΔROE_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. β_2 and β_3 represent the effect of sales growth on the change in ROE in low (high) corruption countries for firms with abnormally low corruption ratings. β_4 and β_5 reflect the incremental impact of sales growth on the change in ROE for firms with abnormally high ratings in *low* and *high* corruption geographic segments respectively.

4. Results

4.1. Determinants of Variation in Anticorruption Efforts

Table 4 reports the results of the model explaining cross-company variation in anticorruption ratings. We standardize all variables to facilitate comparing 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. Since data on governance variables is only available for 282 of the sample firms, we report two models. The first uses all 480 firms but excludes governance variables, and the second includes the governance variables but is limited to 282 observations.

The overall explanatory power of the model excluding governance variables is 45.4%, 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 country and industry fixed effects in addition to the same firm specific variables that we use in Table 4, suggesting that the identified industry and country variables incorporated in the model capture much of variation in disclosed anticorruption efforts due to country and industry factors.

The enforcement and monitoring variables are all statistically and economically significant. Home country enforcement has the largest estimated coefficient of 0.303, implying that a one standard deviation increase in home country enforcement increases a company's rating by 0.303. The U.S. listing and Big Four auditor variables are also positive and significant indicating that non-U.S. firms that subject themselves to U.S. anticorruption laws and enforcement, and firms that hire Big Four auditors, report greater anticorruption efforts. Finally, firms that have experienced past enforcement actions for corruption disclose higher anticorruption efforts.

The variables reflecting firms' exposure to corruption are also significant. The positive home country corruption estimate implies that firms from less corrupt home countries have stronger anticorruption ratings. The effect of host country corruption is negative but insignificant. The positive industry risk estimate indicates that firms operating in high-risk industries disclose more anticorruption efforts.

For the model that includes governance variables (but uses 282 rather than 480 observations), the findings are remarkably similar to those discussed above. Except for the Big Four auditor estimate, the same risk and enforcement/monitoring estimates are statistically reliable and economically comparable. Among the governance variables themselves, the

percentage of independent directors is positive and significant, and implies that an increase in the percentage of independent directors is associated with an increase in disclosed anticorruption efforts. It is difficult to discern, however, whether this reflects stronger anticorruption efforts promulgated by an independent board, or increased cheap talk as independent boards and managers collectively seek to manage regulatory risks related to corruption. The CEO-Chairman duality and board attendance variables are insignificant.[17]

Finally, only a subset of the firm-specific control variables are significant in both models that include and exclude governance variables. Estimates for percent foreign sales and English reporting indicate that firms that are internationally diversified and with English as their primary language report more anticorruption efforts. The negative country disclosure estimate is inconsistent with prior research and suggests that anticorruption disclosures are not driven solely by disclosure practices. Estimates for the number of segments and percent closely held shares are significant in the model excluding the governance variables, and firm size is significant in the model that includes governance variables. But the remaining variables found to be associated with disclosure practices in past research (such as ROE, analyst following, forecast error, and accounting standard quality) are insignificant, suggesting that our dependent variable differs from other disclosure metrics.

4.2. Anticorruption Efforts and Subsequent Corruption Allegations

Table 5 shows coefficient estimates for the relation between subsequent allegations in the media about corruption for three different years, 2008, 2009, and 2010, and residual anticorruption

[17] In tests discussed below, we report results using residuals from the anticorruption efforts model that is estimated for the full sample (i.e. excluding the governance variables). Sensitivity tests, presented in table 8, show the results using residuals from the model including governance data. The findings are similar to those reported for the full sample excluding governance variables.

ratings. Across all three models, the coefficients on residual (abnormal) anticorruption efforts are negative and significant indicating that firms with abnormally high anticorruption efforts have fewer subsequent allegations of corruption. The 2008 coefficient indicates that a one standard deviation increase in abnormal anticorruption ratings decreases the number of corruption articles by 1.5, or 15%. The respective economic effect for 2009 is -18%, and for 2010 is -46%, although this last effect is less statistically reliable. In untabulated tests, we exclude firms that have zero corruption allegations in 2007 and which could not decrease corruption allegations through anticorruption efforts. We find that excluding those firms increases the statistical significance of our results and the economic effects now equal 21, 25, and 31% for 2008, 2009 and 2010 respectively.

The coefficients on the control variables have the expected signs. Firms that receive more media attention have more articles alleging corruption, and firms with past corruption allegations tend to have more future allegations. The coefficient on past corruption allegations is less than one, suggesting that firms facing corruption allegations take measures to combat the charges, leading to a decline in future allegations. Consistent with this mean reversion, the coefficient on past allegations decreases as the dependent variable is measured further into the future, from 0.717 when the dependent variable is year 2008 articles to 0.195 when the dependent variable is year 2010 articles.

Although we have winsorized all media variables to reduce the influence of outliers, we log-transform all media variables to further mitigate the influence of any remaining outliers. In untabulated tests we find that the coefficient on residual anticorruption efforts is negative and significant at the 5% level for 2009 and at the 10% level for 2008 and 2010.

4.3. Anticorruption Efforts and Sales Growth

Results of tests of the relation between three-year ahead sales growth and abnormal anticorruption efforts are presented in Table 6. Because of missing geographic segment data, the sample decreases to 350 firms. The table reports average geographic segment sales growth rates from 2007 to 2010 (after the ratings were constructed) for firms with residual anticorruption efforts (estimated using the model in Table 4) that are above or below the median, and in geographic segments with high and low corruption risk.

Table 6, Panel A reports results when segments are classified according to their corruption relative to the median corruption of all 47 geographic segments in the sample. This classification maximizes the difference in the corruption level across the high and low corruption risk categories. However, the two corruption risk categories can include very different firms, potentially allowing unobservable firm characteristics to drive differences in sales growth across high and low corruption risk categories. Table 6, Panel B addresses this concern by classifying firms' geographic segments using their corruption score relative to the median corruption score of only segments where the firm operates. This ensures that each firm is included in both the high and low corruption risk categories and therefore that the influence of other firm characteristics on segment sales growth is mitigated. It 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. Panel A shows that in low corruption geographic segments, the sample firms with abnormally low anticorruption efforts have future sales growth rates of -4.3% versus 0.1% for firms with high anticorruption efforts. However, the difference between these estimates is not statistically significant, indicating that in low corruption geographic segments firms' anticorruption efforts have little impact on their subsequent sales growth. Findings in Panel B, using the within-firm classification of segments as

high and low corruption are similar. 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 anticorruption efforts diverge sharply in high corruption geographic segments. Panel A shows that firms with abnormally high anticorruption efforts have sales growth of only 2.6%, compared to 14.1% for those with low anticorruption efforts. The difference is statistically significant. More importantly, the differences-in-differences estimate comparing sales growth for firms with high and low anticorruption efforts in high and low corruption geographic segments is 15.9% and is both statistically and economically significant. The results in Panel B are similar with the differences-in-differences estimate being slightly lower at 13.3%. This is not surprising as the average difference in the World Bank corruption ratings for geographic segments classified as high and low corruption in Panel A is 1.15, versus 0.95 in Panel B. The difference between these mean estimates is not statistically significant.

Because these univariate tests do not control for mean reversion in sale growth, documented in prior studies (see Healy and Palepu, 2008), we re-estimate the tests using a multivariate approach. The results (untabulated) are similar to those presented above, generating a difference-in-differences in growth rates of between 16% and 17.4%. Consistent with prior research, we find strong evidence of mean reversion in sales, represented by a significant negative estimate on lagged sales growth.

Since these findings use residual rather than total anticorruption efforts, they cannot be attributed to differences in country or industry risk exposures, or to differences in enforcement or monitoring effects across the sample firms. Also, the persistence of sales growth differences,

when geographic segments are classified as high and low corruption using within-firm comparisons, implies that the findings are not attributable to differences in the propensity for high and low anticorruption rated firms to operate in corrupt countries. Finally, the difference-in-differences test implies that the sales growth difference cannot be attributed to a firm effect that drives growth in both clean and corrupt countries.

However, the above tests do not control for any differences in firms' product offerings across corrupt and clean geographic segments. Our findings could arise if multinationals with high anticorruption ratings offer only differentiated high margin products in high corruption geographic segments, whereas firms with low anticorruption ratings offer largely low margin undifferentiated products. Such a product mix difference could reflect a difference in anticorruption efforts if highly rated firms choose to offer differentiated products in high corruption geographic segments to increase their market power to avoid paying bribes to corrupt buyers.[18] Alternatively, it could simply reflect differences in comparative advantage - firms with low-end products are better able to compete in less developed (more corrupt) countries whereas firms with high-end products are better able to compete in more developed (less corrupt) countries. Both factors could explain the slower sales growth and higher profitability for high anticorruption firms in high versus low geographic segments compared to firms with low anticorruption efforts.

To examine this explanation for our findings, we separately analyze sample firms that have more than 90% of their sales in one three-digit SIC code and whose products are undifferentiated commodities. The Standard & Poor's Commodity Index includes energy products, industrial metals, agricultural products, livestock products and precious metals in

[18] Of course, firms offering differentiated products in corrupt geographic segments are subject to the risk of intellectual property appropriation, raising questions about the value of this strategy.

commodity sectors. Of the 480 firms in our sample, 88 have 90% or more of their business in one of these commodity sectors and 72 report geographic segment data required for our tests. Most of these firms operate in either the oil and gas or basic materials industries. Table 6, Panel C shows segment sales growth estimates for this smaller sample. The differences-in-differences estimate is 12.3%, which is similar to the estimates tabulated in Panels A and B, and statistically significant. Our findings therefore hold even for firms that offer similar types of commodity products across their geographic segments, suggesting that the performance differences for firms with high and low anticorruption ratings do not reflect endogenous differences in product offerings across countries.

4.4. Anticorruption Efforts, Profitability Margin, and Sales Growth

Table 7 reports multivariate estimates of the relation between performance and abnormal anticorruption efforts. We estimate the relation between sales growth and changes in ROE using both the across-firm (Table 6, Panel A) and the within-firm (Table 6, Panel B) segment classification. To maintain comparability we also report estimates for the smaller sample of firms in commodity businesses. Across all specifications the change in ROE is positively (negatively) related to sales growth in low (high) corruption geographic segments. The magnitudes of the estimated coefficients are economically interesting. Using the across-firm segment classification, the estimates imply that for the median sample company with low corruption geographic segment sales comprising 70% of total sales, a 10% increase in sales increases ROE by 17 basis points in low corruption geographic segments, but decreases ROE by 7 basis points in high corruption geographic segments. Using the within-firm geographic segment classification the estimates imply that a 10% increase in sales increases ROE by 14 basis points in low corruption geographic segments, but decreases ROE by 10 basis points in high corruption geographic

segments. Therefore, the effect on company ROE from increasing sales in high versus low corruption segments is 24 basis points.

However, the relation between sales growth and profitability differs for firms with abnormally high and low anticorruption efforts. To estimate this effect, we interact high and low corruption geographic segment sales growth with an indicator variable for firms with high abnormal anticorruption efforts. The estimate for sales growth in high corruption geographic segments, which represents the effect for firms with abnormally low anticorruption efforts, continues to be negative and becomes statistically significant. The estimates imply that for these firms, a 10% sales increase in high corruption geographic segments is accompanied by a decline in company ROE of about 29 or 24 basis points depending on whether we classify segment corruption within or across firms.

But the interaction effect for firms with high residual anticorruption efforts and sales growth in corrupt geographic segments is positive and significant. The sum of the two estimates, which represents the overall marginal effect for firms with high anticorruption efforts, is insignificant. Firms with high anticorruption efforts that grow sales in high corruption geographic segments, therefore, do so without decreasing their ROE. For geographic segments where corruption is low, sales growth has a similar impact on ROE for both high and low anticorruption efforts firms.

These findings imply that firms with abnormally low anticorruption efforts grow businesses in high corruption geographic segments at the cost of reducing their ROE. Since the valuation of a company increases in both ROE and the growth rate of the book value of equity (Healy and Palepu, 2008), it is not clear whether firms with high anticorruption efforts will have

higher or lower valuations. To estimate the net valuation effect of anticorruption efforts, we use the formulation for the perpetuity value-to-book equity multiple:

$$\frac{V}{B} = 1 + \frac{ROE - r}{r - gB}$$

where V is the equity value of the firm, B is the accounting book value of equity, ROE is the long-term ROE, r is the cost of equity capital, and g^B is the growth rate of the book value of equity. Our average sample firm has an ROE of 28%. For firms with strong anticorruption efforts, weighted average growth is 0.85% per year (2.6% in corrupt geographic segments that comprise 30% of its business, and 0.1% in clean geographic segments), according to the estimates in Table 6, Panel A. Given these estimates and a cost of equity of 10%, the average firm would have a value to book multiple of 2.97 (1+(28%-10%)/(10%-0.85%)).[19] In contrast, the average firm with low anticorruption efforts has a higher growth rate of 1.2% (14.1% in corrupt countries that comprise 30% of its business, and -4.3% in clean countries). But its expected ROE, based on estimates in Table 7, would be 27.4%. These estimates generate a value-to-book multiple of 2.98 (1+(27.4%-10%)/(10%-1.2%), virtually identical to that of its counterpart with high anticorruption efforts. Using estimates for the within-firm segment classification yields similar results. The computations therefore imply that on average the differences in ROE and sales growth observed for firms with high and low anticorruption efforts have limited effect on their valuations.

4.5. Additional Analyses

Our tests attempt to control for many factors that are likely to be correlated with both corruption ratings and future firm performance. We use residual, rather than total, anticorruption efforts, to control for differences in country and industry risk exposures, and for differences in enforcement

[19] We are assuming that sales growth is approximately equal to growth in book value of equity.

or monitoring effects across the sample firms. The persistence of the sales growth differences when geographic segment corruption is classified using within firm comparisons suggests that the findings are not attributable to systematic differences in the countries where high and low anticorruption rating firms choose to operate. But there are a number of limitations to our tests that remain, and which merit discussion and further empirical analysis.

Transparency International Ratings. Several questions arise from our use of Transparency International ratings as a measure of firms' anticorruption policies. First, as discussed above, it is unclear whether the metric reflects companies' enforcement of their policies (as opposed to cheap talk). Second, our tests assume a linear relation between ratings and subsequent anticorruption allegations or performance. Yet it is plausible that additional effort could have diminishing benefits in combatting corruption, or that some minimum rating threshold is required for efforts to be effective.

To examine these limitations, we undertake two additional tests. First, we re-estimate our tests using management systems as the only component of the anticorruption ratings variable. Management system disclosures cover 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. TI investigators allocated half of the total points to management systems because they regarded these as likely to be more credible and effective than the policy and strategy segments, which could more easily be classified as public relations.

Second, to estimate a non-linear specification of our tests, we transform the ordinal

anticorruption rating variable into quintiles. The variable takes the value one for firms whose ratings are in the bottom 20 percent, two for firms with ratings in the next lowest 20 percent, and so on. The tests are re-estimated using this transformed variable.

Table 8 summarizes the key findings of both these additional tests, reporting the residual anticorruption ratings estimated coefficient for the subsequent media allegation analysis in Table 5, the differences-in-differences sales growth rates for the analysis in Table 6, and the coefficient on the interaction between sales growth in high corruption countries and high residual anticorruption efforts indicator variable for the ROE analysis in Table 7. The results using both the management systems rating score and the quintiles ranks are similar to those reported in the paper.

Incentives of U.S. Listed Firms. Many of our firms are U.S. listed and hence subject to the FCPA. Given the higher levels of enforcement of these laws, such firms have stronger incentives for cheap talk. By reporting higher anticorruption policies (leading to higher ratings), these firms may be able to reduce regulatory penalties for corruption infractions. To test this possibility, we re-estimate the models using only firms with U.S. equity and/or fixed income listings. If these firms' disclosures reflect only cheap talk, their anticorruption ratings would show no relation with subsequent anticorruption allegations and sales growth. However, the estimates in Table 8 show that the results for these firms are similar to those for the full sample, further confirming our conclusion that cheap talk alone is not driving disclosure of anticorruption efforts.

Including Corporate Governance Variables. The primary results discussed above use residuals from the model of anticorruption efforts for the full 480-firm sample. Due to data limitations that limit the sample to only 282 firms, these analyses exclude governance variables. Yet our earlier findings, using the subsample of 282 firms, indicate that firms with more independent boards

have stronger anticorruption efforts. To assess whether this factor affects subsequent corruption allegations or changes in performance, we re-estimate our models using residuals from the model including governance variables.

Table 8 reports the residual anticorruption ratings estimated coefficient for the subsequent media allegation analysis in Table 5, the differences-in-differences sales growth rates for the analysis in Table 6, and the coefficient on the interaction between sales growth in high corruption countries and high residual anticorruption efforts indicator variable for the ROE analysis in Table 7. Residual anticorruption efforts continue to be negatively correlated with future corruption allegations, sales growth in corrupt geographic segments and moderate positively the relation between ROE change and sales growth in corrupt geographic segments.

5. Conclusion

We find that ratings of firms' self-reported anticorruption efforts are predictably related to enforcement and monitoring costs, such as home country enforcement, U.S. listing, Big Four auditors, and prior enforcement actions. They are also related to industry and country corruption risks, and to greater board independence. In addition, firms with abnormally high anticorruption ratings have a lower frequency of subsequent allegations of corruption in the media. The financial implications of fighting disclosure are more nuanced. Over the following three years, firms with abnormally low anticorruption efforts have higher sales growth in corrupt geographic segments than firms with abnormally high anticorruption efforts. But higher growth is accompanied by lower ROEs. For firms with abnormally low anticorruption efforts, we find a negative relation between changes in ROE and sales growth in high corruption geographic segments. No such decline occurs for high anticorruption efforts firms, or for either

anticorruption type in geographic segments where corruption is low. Importantly, the valuation effects of these performance differences are modest, as the two effects are offsetting.

Taken as a whole, the findings indicate that disclosed anticorruption efforts reflect more than cheap talk by the sample companies. Firms with high anticorruption efforts choose to expose themselves to costly monitoring from high quality auditors, subject themselves to costly enforcement from U.S. exchanges and courts, and operate in home countries where anticorruption laws are effectively enforced. They generate lower three-year ahead sales growth rates in more corrupt geographic segments than peers with low anticorruption efforts. Presumably they bear these costs because they are committed to operating within the law (whether enforced or not) and perceive that there are long-term business and reputational payoffs from doing so. Further, our findings are robust to use of TI ratings expected to be most reflective of management efforts to curtail corruption, and restricting the sample to U.S.-listed companies, which are subject to the FCPA enforcement.

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. Such firms are likely to have more leverage to fight corruption than small local firms. Our results might therefore not generalize to a sample of small local firms. Second, the TI sample used for our tests deliberately oversamples certain countries and (e.g. China) and industries (e.g. basic materials and oil & gas). Although including such countries and industries increases the variance of the reported anticorruption variable used in the paper, it also raises further questions about whether the results generalize. Third, 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 differ from those

documented over longer time horizons. We believe that 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' self-reported efforts to fight corruption? To what extent do they reflect the personal values of the top executive or executive team? Prior research argues that managerial experiences, values and cognitive styles, such as integrity, affect corporate decisions (see for example, Bertrand and Schoar 2003, Dyreng, Hanlon and Maydew 2010, and Davidson, Dey and Smith 2012). Does the level of competition from local firms influence multinational firms' ratings and corruption policies in their countries? Finally, what are the most effective methods of combatting corruption at the firm level? We believe that these and other firm-level questions are likely to provide fruitful areas for future research.

References

Ades, A. and R. Di Tella (1997), 'National champions and corruption: some unpleasant interventionist arithmetic', Economic Journal, 107, 1023–42.

Ades, A. and R. Di Tella (1999), 'Rents, competition, and corruption', American Economic Review, 89, 982–94.

Adsera, A., C. Boix and M. Payne (2000), 'Are you being served? Political accountability and quality of government', Inter-American Development Bank Research Department Working Paper 438, Washington, DC.

Anderson, C.J. and Y.V. Tverdova (2003), 'Corruption, political allegiances, and attitudes toward government in contemporary democracies', American Journal of Political Sciences, 47(1), 91–109.

Anoruo, E. and H. Braha (2005), 'Corruption and economic growth: the African experience', Journal of Sustainable Development in Africa, 7(1), 43–55.

Baysinger, B. D., and Butler, H. N. (1985). 'Corporate governance and the board of directors: Performance effects of changes in board composition,' Journal of Law, Economics, & Organization, 101-124.

Beck, T., Demirgüç-Kunt, A., & V. Maksimovic (2005), 'Financial and legal constraints to growth: does firm size matter?' The Journal of Finance, 60(1), 137-177.

Bens, D. and S. Monahan (2004), 'Disclosure Quality and the Excess Value of Diversification', Journal of Accounting Research, 42 (4), 691-730.

Bertrand, M., Schoar, A., (2003), 'Managing with style: The effect of managers on firm policies', The Quarterly Journal of Economics 118, 1169-1198.

Brickely, James, Jeffrey Coles and Greg Jarrell, (1997), 'Leadership structure: Separating the CEO and Chairman of the Board,' Journal of Corporate Finance, 3(3), 189-220.

Di Tella, R., & I. Franceschelli (2011), 'Government advertising and media coverage of corruption scandals', American Economic Journal: Applied Economics, 3(4), 119-151.

Dyreng, S., Hanlon, M., Maydew, E., (2010), 'The effects of executives on corporate tax avoidance', The Accounting Review 85, 1163-1189.

Davidson, R., Dey, A., & A.J. Smith (2012). 'Executives' "Off-The-Job" Behavior, Corporate Culture, and Financial Reporting Risk', NBER Working Paper No. 18001.

Elliott, K.A. (1997), 'Corruption as an international policy problem: overview and recommendations', in K.A. Elliott (ed.), Corruption and the Global Economy, Washington, DC: Institute for International Economics, pp. 175–233.

Eng, L. and Y. Mak (2003), 'Corporate governance and voluntary disclosure', Journal of Accounting and Public Policy', 22 (4), 325-345.

Gerring, J. and S. Thacker (2005), 'Do neoliberal policies deter political corruption', International Organization, 59, 233–54.

Gompers, P., J., Ishii, and A. Metrick (2003), 'Corporate governance and equity prices', Quarterly Journal of Economics 118, 107‑155.

Hall, R. and C. Jones (1999), 'Why do some countries produce so much more output per worker than others?', Quarterly Journal of Economics, 114, 83–116.

Healy, P. & K. Palepu (2008), 'Business analysis and valuation: Using financial statements' (Fourth edition). Mason, OH: Thomson Southwestern.

Healy, P., & D. Petkoski (2009), 'Fighting Corruption at Siemens', Harvard Business School Accounting & Management Unit Case.

Kaufmann, D., A. Kraay and P. Zoido-Lobatón (1999), 'Aggregating governance indicators', World Bank Policy Research Working Paper no. 2195, World Bank, Washington, DC.

Khwaja, A. and A. Mian (2005), 'Do lenders favor politically connected firms? Rent provision in an emerging financial market', Quarterly Journal of Economics, 120 (4), 1371-1411.

Knack, S. & P. Keefer, (1995), 'Institutions and economic performance: cross-country tests using alternative institutional measures', Economics & Politics, 7 (3), 207-227.

Kwok, C. and S. Tadesse (2006), 'The MNC as an agent of change for host country institutions: FDI and corruption', Journal of International Business Studies 37 (6), 767-785.

La Porta, R., F. Lopez-De-Silanes, A. Shleifer and R.W. Vishny (1997), 'Trust in large organisations', American Economic Review, Papers and Proceedings, 137(2), 333–8.

La Porta, R., F. Lopez-De-Silanes, A. Shleifer and R.W. Vishny (1999), 'The quality of government', Journal of Law, Economics and Organization, 15(1), 222–79.

La Porta, R., F. Lopez-De-Silanes, and A. Shleifer (2006), 'What Works in Securities Laws?' The Journal of Finance, 61: 1–32.

Lang, M. and R. Lundholm. (1993). 'Cross-Sectional Determinants of Analysts Ratings of Corporate Disclosures.' Journal of Accounting Research, 31. Autumn: 246-271.

Lang, M. and R. Lundholm. (1996). 'Corporate Disclosure Policy and Analyst Behavior', The Accounting Review, 71. October: 467-492.

Leite, C. and J. Weidemann (1999), 'Does Mother Nature corrupt? Natural resources, corruption, and economic growth', International Monetary Fund Working Paper, 99/85, July.

Lipset, S.M. and G.S. Lenz (2000), 'Corruption, culture, and markets', in L.E. Harrison and S.P. Huntington (eds), Culture Matters: How Values Shape Human Progress, New York: Basic Books, pp. 112–24.

Lyon, J. and M. Maher (2005), 'The importance of business risk in setting audit fees: Evidence from cases of client misconduct,' Journal of Accounting Research, 43 (1), 131-151.

Miller, G. S. (2002), 'Earnings performance and discretionary disclosure', Journal of Accounting Research, 40(1), 173-204.

Montinola, G. and R.W. Jackman (2002), 'Sources of corruption: a cross-country study', British Journal of Political Science, 32, 147–70.Rock, M.T. and H. Bonnett (2004), 'The comparative politics of corruption: accounting for the East Asian paradox in empirical studies of corruption growth and investment', World Development, 32(6), 999–1017.

Rechner, Paula and Dan Dalton (2006), 'CEO duality and organization performance: A longitudinal analysis,' Strategic Management Journal 12(2), 155-160.

Sandholtz, W. and M. Gray (2003), 'International integration and national corruption', International Organization, 57(4), 761–800.

Sonnenfeld, J. (2002), 'What makes great board great,' Harvard Business Review, September, 2-9.

Spencer, J. and C. Gomez. (2011). 'MNEs' corruption: the impact of national institutions and subsidiary strategy', Strategic Management Journal 32(3): 254–279.

Svensson J. (2003), 'Who must pay bribes and how much? Evidence from a cross-section of firms', The Quarterly Journal of Economics, 118 (1), 207-230.

Swamy, A., S. Knack, Y. Lee and O. Azfar (2001), 'Gender and corruption', Journal of Development Economics, 64, 25–55.

Transparency International (2009), Transparency in Reporting on Anticorruption: A Report on Corporate Practices, (Transparency International, Berlin, Germany).

Treisman, D. (2000), 'The causes of corruption: a cross-national study', Journal of Public Economics, 76, 399–457.

Uslaner, E. (2004), ‘Trust and corruption’, in J. Graf Lambsdorff, M. Schramm and M. Taube (eds), The New Institutional Economics of Corruption: Norms, Trust, and Reciprocity, London: Routledge, pp. 76–92.

Weitzel, U., & S. Berns (2006), ‘Cross-border takeovers, corruption, and related aspects of governance’, Journal of International Business Studies, 37(6), 786-806.

You, J.-S. and S. Khagram (2005), ‘Inequality and corruption’, American Sociological Review, 70(1), 136–57.

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

Sector	Top 250	High risk sectors	High export countries	Omitted	Total
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
Total	250	107	143	20	480

Table 2
Summary statistics for variables used in the empirical tests

Variable	Mean	St. Dev.	Q3	Median	Q1
Panel A: Rating Model Variables					
Anti-corruption efforts	16.90	12.00	26.00	19.00	3.75
Big 4 auditor	0.89	0.31	1.00	1.00	1.00
US cross-listing	0.34	0.47	1.00	0.00	0.00
Firm past corruption enforcement	0.12	0.33	0.00	0.00	0.00
Home country corruption enforcement	1.84	2.39	3.97	0.45	0.00
High risk industry	0.45	0.50	1.00	0.00	0.00
Home country corruption	1.41	0.80	1.85	1.77	1.21
Host country corruption	1.25	0.70	1.77	1.37	0.77
Percent independent directors	68.6%	22.1%	88.9%	74.2%	50.0%
CEO-Chairman duality	0.39	0.49	1.00	0.00	0.00
Board meeting attendance	87.7%	9.2%	95.4%	90.6%	75.0%
ROE	27.7%	19.1%	34.6%	25.3%	17.6%
Firm size	17.51	1.57	18.40	17.24	16.49
% foreign sales	35.8%	31.0%	59.7%	31.8%	4.2%
# of segments	1.35	0.60	1.79	1.39	1.10
% closely held shares	23.4%	25.0%	36.3%	11.8%	2.2%
Analyst following	20.11	10.03	28.00	20.00	14.00
Absolute forecast error	0.13	0.91	0.08	0.03	0.01
Accounting standard quality	0.70	0.46	1.00	1.00	0.00
Home country disclosure	0.77	0.21	1.00	0.75	0.58
English reporting	0.46	0.50	1.00	0.00	0.00
Panel B: Subsequent Corruption Allegation Model Variables					
Number of articles alleging corruption					
2007	10.0	54.8	5	1	0
2008	10.4	59.4	5	1	0
2009	8.2	26.2	6	1	0
2010	11.5	52.3	6	1	0
Total number of articles					
2008	2,437	3,272	3,016	1,196	509
2009	2,522	3,380	3,111	1,245	563
2010	2,804	4,001	3,548	1,475	644
Abnormal ratings	0.0	8.7	5.5	0.0	-6.2

Variable	Mean	St. Dev.	Q3	Median	Q1
Panel C: Subsequent Performance Model Variables					
ΔROE	-5.51%	13.25%	0.78%	-4.86%	-10.81%
SG_i^{LO}	3.0%	110.7%	49%	3.2%	-32.7%
SG_i^{HI}	12.2%	96.9%	58.5%	14.7%	-22.0%

Anticorruption rating is an index of a firm's self-disclosed anticorruption efforts. The specific measures comprising the index are presented in the Appendix. 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. cross-listing is an indicator variable that takes the value one for firms listed as ADRs in the US or issue public debt at the end of fiscal year 2006. Firm past-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. 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. 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. 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. Percent independent directors is the percentage of board directors that are classified as independent. CEO-Chairman duality is an indicator variable that takes the value one if the CEO and Chairman are the same individual, and zero otherwise. Board meeting attendance is the average meeting attendance of board meetings across all directors. ROE is net income over beginning period shareholder's equity for fiscal year 2006. Firm size is the natural logarithm of total assets at the end of fiscal year 2006. Percent 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 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. Analyst following is the number of analysts issuing earnings forecast for a firm in 2006. Absolute forecast error is the absolute difference between realized and consensus EPS forecast one month before the 2006 fiscal year end, divided by the stock price in the previous calendar year. Accounting standard quality is an indicator variable that takes the value of one if a firm follows IFRS or US GAAP in 2006. Home country disclosure is a measure of country disclosure requirements reported by La Porta, Lopez-De-Silanes and Shleifer (2006). English reporting is an indicator variable that takes the value of one if a firm uses English as the primary language in its public documents. ΔROE is the change in return on equity (ROE) between 2007 and 2010. SG_i^{LO} and SG_i^{HI} are the sales growth rates for geographic segments with low/high corruption ratings respectively.

Table 3
Correlation matrix

	Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1)	Anti-corruption systems	1.00																			
(2)	Big 4 auditor	0.31	1.00																		
(3)	US cross-listing	0.07	0.17	1.00																	
(4)	Firm corruption enforcement	0.28	0.07	0.12	1.00																
(5)	Home country corruption enforcement	0.01	-0.10	-0.03	-0.03	1.00															
(6)	High risk industry	0.47	0.29	0.05	0.07	-0.15	1.00														
(7)	Home country corruption	0.42	0.15	-0.40	0.09	-0.05	0.31	1.00													
(8)	Host country corruption	0.24	0.24	0.00	0.00	-0.15	0.64	0.20	1.00												
(9)	ROE	0.19	0.13	0.00	0.10	0.16	0.08	0.14	-0.08	1.00											
(10)	Firm size	0.20	0.15	0.14	0.12	-0.30	0.24	0.16	0.16	-0.04	1.00										
(11)	% foreign sales	0.25	0.09	0.24	0.09	-0.13	0.37	-0.14	0.25	0.05	-0.07	1.00									
(12)	# of segments	0.19	0.15	0.03	0.07	0.05	0.19	0.08	0.20	0.01	0.21	0.10	1.00								
(13)	% closely held shares	-0.35	-0.15	0.06	-0.05	0.12	-0.33	-0.37	-0.22	-0.19	-0.28	-0.07	-0.12	1.00							
(14)	Analyst following	0.21	0.24	0.18	0.07	-0.07	0.24	0.12	0.12	0.05	0.15	0.14	0.05	-0.07	1.00						
(15)	Absolute forecast error	0.01	0.02	0.08	-0.02	-0.04	0.04	-0.05	0.06	0.05	0.09	-0.06	0.00	-0.05	-0.01	1.00					
(16)	Accounting standard quality	0.35	0.29	0.11	0.18	-0.08	0.32	0.39	0.19	0.09	0.26	0.20	0.18	-0.13	0.26	0.01	1.00				
(17)	Country disclosure	0.33	0.10	-0.26	0.04	-0.03	0.45	0.62	0.31	0.11	0.10	-0.07	0.05	-0.33	0.10	0.01	0.01	1.00			
(18)	English reporting	0.35	0.04	-0.25	0.04	0.01	0.34	0.53	0.17	0.16	0.05	-0.12	-0.04	-0.27	-0.01	0.06	0.01	0.78	1.00		
(19)	Percent independent directors	0.45	0.25	-0.25	0.01	-0.07	0.46	0.54	0.31	0.11	0.08	-0.01	0.10	-0.56	0.08	-0.04	0.20	0.47	0.41	1.00	

(20)	CEO-Chairman duality	0.19	0.07	-0.27	0.01	0.02	0.05	0.54	0.06	-0.01	0.02	-0.21	0.10	-0.17	0.06	-0.16	0.18	0.37	0.26	0.29	1.00
(21)	Board meeting attendance	-0.20	-0.04	0.35	0.02	0.01	-0.07	-0.67	-0.06	-0.04	-0.06	0.16	-0.11	0.15	-0.07	0.08	-0.25	-0.49	-0.34	-0.28	-0.35

All variables are defined in Table 2.

Table 4
Determinants of disclosure of anticorruption efforts

Parameter	Estimate	t-statistic	Estimate	t-statistic
Intercept	0.0000	0.00	0.0000	0.00
Enforcement and Monitoring Variables				
Big 4 auditor	0.1320	3.69	0.0291	0.59
U.S. cross-listing	0.1070	2.42	0.1174	1.90
Prior firm corruption enforcement	0.1720	5.23	0.1711	4.10
Home country corruption enforcement	0.3028	5.24	0.3492	3.33
Exposure to corruption risk				
High risk industry	0.1091	2.84	0.1432	2.61
Home country corruption	0.2192	4.05	0.2539	3.12
Host country corruption	-0.0656	-1.45	-0.0457	-0.76
Governance Variables				
Percent independent directors			0.1389	1.99
CEO-Chairman duality			0.0213	0.40
Board meeting attendance			0.0178	0.30
Control Variables				
ROE	0.0189	0.47	0.0298	0.52
Firm size	0.0501	1.22	0.1348	2.41
% foreign sales	0.1881	4.30	0.2364	3.97
# of segments	0.0720	2.14	0.0534	1.22
% closely held shares	-0.1101	-2.56	-0.0481	-0.66
Analyst following	0.0376	1.05	0.0201	0.39
Absolute forecast error	0.0019	0.13	-0.0026	-0.06
Accounting standard quality	0.0156	0.31	-0.0030	-0.04
Country disclosure	-0.1446	-2.23	-0.2480	-2.11
English reporting	0.2369	4.15	0.3093	3.24
Adj R-squared	45.4%		44.0%	
N	480		282	

This table presents estimates from an OLS model where the dependent variable is ratings of firms' self-reported 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 5
Relation between residual anticorruption ratings and subsequent corruption allegations

	CorruptArticles t=2008		CorruptArticles t=2009		CorruptArticles t=2010	
Parameter	Estimate	t statistic	Estimate	t statistic	Estimate	t statistic
Intercept	-4.487	-2.14**	-1.552	-1.24	-4.688	-0.87
Res_AC (2007)	-0.151	-2.27**	-0.134	-2.13**	-0.559	-1.75*
CorruptArticles (2007)	0.717	9.62***	0.283	12.15***	0.195	3.91***
TotalArticles (year t)	0.003	1.89*	0.003	4.27***	0.005	1.89*
Adj R-squared	51.6%		56.2%		22.2%	
N	480		480		480	

The dependent variable, CorruptArticles (2008 or 2009 or 2010), 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 2008, 2009, or 2010. Res_AC (2007) is the residual anticorruption rating, from the OLS model estimated in Table 4. 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 6

Relation between future sales growth rates (2007-2010) for sample firm geographical segments, ratings of segment corruption, and firm residual anticorruption 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 rating	
		Low	High
Geographic segment corruption	Low	-4.3%	0.1%
	High	14.1%	2.6%
Differences-in-differences		Estimate	p-value
		15.9%	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 rating	
		Low	High
Geographic segment corruption	Low	-4.5%	0.8%
	High	8.6%	0.6%
Differences-in-differences		Estimate	p-value
		13.3%	0.014

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

Panel C: 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. Includes only industrially undiversified firms in commodity sectors

		Residual anticorruption rating	
		Low	High
Geographic segment corruption	Low	-2.1%	1.2%
	High	12.3%	3.3%
Differences-in-differences		Estimate	p-value
		12.3%	0.036

N=412 geographic segments for 72 firms operating in 38 geographic segments

In Panel A 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 Panel B 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. Standard errors are robust to heteroscedasticity and clustered at the firm level. ***/**/* Significant at the 1, 5 and 10 percent level using a two-tailed test.

Table 7

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

	Segments classified across-firms (Table 6-Panel A)				Segments classified within-firms (Table 6-Panel B)				Segments for firms in commodity businesses (Table 6-Panel C)			
Variable	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Intercept	-1.906	-1.44	-2.277	-1.40	-1.042	-0.83	-1.238	-0.95	-1.233	-0.87	-1.238	-0.95
$Res\_AC_i^{HI}$			-0.296	-0.18			-0.405	-0.42			-0.405	-0.42
SG_i^{LO}	1.738	2.14**	1.364	1.23	1.359	2.01**	1.210	1.58	1.421	1.97**	1.564	2.01**
SG_i^{HI}	-0.733	-0.95	-2.446	-2.26**	-1.027	-1.51	-2.955	-2.85**	-0.627	-0.51	-2.159	-2.13**
$SG_i^{LO} * Res\_AC_i^{HI}$			0.750	0.50			0.148	0.16			-0.101	-0.24
$SG_i^{HI} * Res\_AC_i^{HI}$			3.423	2.25**			3.184	2.05**			2.895	1.90*
Industry effects	Yes		Yes		Yes		Yes		Yes		Yes	
Adj R-squared	6.6%		7.1%		6.4%		7.0%		7.1%		8.1%	
N	350		350		303		303		72		72	

Dependent variable is the change in return on equity (ROE) between 2007 and 2010. $Res\_AC_i^{HI}$ is a dummy variable that takes the value one for firms that have residual anticorruption ratings (estimated using the model in Table 4) 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 if their corruption score is below/above the median for *all sample firm* segments (first four columns) or for *the firm's own* segments (last four columns). ***/**/* Significant at the 1, 5, and 10 percent level using a two-tailed test.

Table 8
Additional Analyses

	Controlling for Corporate Governance		Anti-corruption efforts in quintiles		Only management systems		Only firms subject to FCPA	
Media articles analysis (Table 5)	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
$CorruptArticles_{t=2008}$	-0.111	-1.98**	-0.124	-2.09**	-0.168	-2.48**	-0.148	-2.96***
$CorruptArticles_{t=2009}$	-0.137	-2.21**	-0.101	-2.13**	-0.121	-2.11**	-0.133	-2.36**
$CorruptArticles_{t=2010}$	-0.201	-1.78*	-0.276	-1.94*	-0.416	-1.82*	-0.466	-2.01**
Sales growth analysis (Table 6)	Estimate	p-value	Estimate	p-value	Estimate	p-value	Estimate	p-value
Diffs-in-diffs estimate (Panel A)	10.1%	0.034	9.8%	0.047	17.4%	0.009	14.0%	0.014
Diffs-in-diffs estimate (Panel B)	10.3%	0.032	8.6%	0.052	15.2%	0.012	12.2%	0.012
Profitability analysis (Table 7)	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic	Estimate	t-statistic
Estimate on $SG_i^{HI} * Res\_AC_i^{HI}$	3.091	1.98**	2.111	1.91*	4.111	2.24***	3.228	2.31**

This table presents various robustness tests of the results presented in the paper. The first two columns present results after introducing additional independent variables in the determinants model for the quality of corporate governance (board independence, CEO-Chairman duality, and board average attendance). The second two columns present results after transforming the anticorruption efforts variable to a quintile ranking. The third two columns present results after constructing the anticorruption efforts variable using only the management systems factors. The fourth two columns present results using as a sample only firms that are subject to the U.S. FCPA. In the media articles analysis the estimate coefficient on the residual anticorruption efforts variable is presented. In the sales growth analysis the differences-in-differences estimate is presented. In the profitability analysis the estimated coefficient on the interaction term between sales growth in high corruption geographic segments and residual anticorruption effort indicator variable is presented. ***/**/* Significant at the 1, 5 and 10 percent level using a two-tailed test.

Appendix

Factors used by TI to rate companies' anticorruption efforts

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)

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)

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)

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