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Corruption, corporate social responsibility and financial constraints: International firm-level evidence

Abstract

Purpose – This study examines the relationship between firm-level organizational factors including corporate social responsibility (CSR) performance and financial constraints, and the firm-level risk of engaging in corrupt activities.

Design/methodology/approach – Facing a measurement challenge referring to firm-level risk of corruption, we define a corruption score based on corporate disclosures of corrupt activities.

Findings – We find that, first, CSR performance is negatively related to the risk of corporate corruption. Second, a firm's vulnerability to financial constraints is positively related to the risk of corporate corruption. Third, the effects are particularly strong for firms with low board independence and low financial performance. Last but not least, our self-defined score is the first firm-level corruption score that is found to be robust to prior corruption indices and thus is able to measure firm-level corruption risk.

Research limitations/implications – Our findings are constrained by the substance of our sample. To check our score and results for robustness, we base our sample on a set of firms investigated by Transparency International. By doing so, our corruption score is shown to effectively reconstruct prevalent corruption indices and thus can be used for future research on firm-level corruption. Our study has implications for accounting and organizational change, suggesting that the organizational change, brought about by incorporation of corporate social responsibility activities into organizational practices lowers corruption risk.

Practical implications – Our findings are useful to business organizations and society alike as they identify organizational factors that can minimize corporate corruption risk. Also, investors and regulators should consider the determinants of firm-level corruption in order to better fight corporate corruption risk.

Originality/value – This study contributes to accounting literature as it is the first to define a robust firm-level corruption score. This score is applicable to any dataset and can be used for future research on firm-level corruption. Moreover, our study provides new empirical evidence on firm-level organizational factors that relate to corporate corruption risk. The overall contribution of the study is that changing organizational practices through consideration of corporate social responsibility activities lowers corruption.

Keywords

Corruption, Corporate social responsibility, Financial constraints, Transparency, Content analysis

Paper type Research paper

1. Introduction

Concerns about corporate corruption have been of practical significance for as long as organizations exist. However, only recently has corruption become a major regulatory issue for governments around the world. This is reflected in stricter legislations and more stringent enforcement of anti-corruption laws such as the UK Bribery Act and the Foreign Corrupt Practices Act (FCPA) which is enforced by the Securities and Exchange Commission (SEC). In parallel to increased attention from politics, corruption has become a focus of academic research attempting to identify the reasons for corrupt activities. Economic, political, and cultural factors have been identified as influencing corrupt activities on a country level. Yet firm-level studies on the impact of organizational factors on corruption are largely missing from the picture (de Jong and van Ees, 2014). One reason for the focus on macro- rather than firm-level studies is the availability of corruption measurements. While several corruption indices exist, the majority are available on country- rather than firm-level basis (e.g., Transparency International's Corruption Perception Index (CPI), World Bank's Control of Corruption Index (CCI), International Country Risk Guide (ICRG)). Therefore, corruption and its relationships with firm-level organizational factors is a research field that to date remains largely unexamined in the literature (Healy and Serafeim, 2014).

Our study contributes to accounting literature by being the first to overcome the absence of a suitable measure of corporate corruption risk by defining a firm-level corruption score. Based on content analysis, we quantify the reporting transparency on issues related to corruption disclosed in the annual reports of the 105 largest firms worldwide. Checking our score with a battery of different models and comparing it to other measures of corruption, we prove our score to be robust. We further verify the explanatory power of our self-defined corruption score by comparing it to the occurrence of alleged violations of anti-corruption laws. In contrast to

other indices, our novel scoring approach offers the unique advantage that it can be re-applied in future research to any set of firms when investigating firm-level corruption risk as it is based on a firm's disclosure in annual reports.

Furthermore, our study provides new empirical evidence on organizational factors related to corporate corruption, a research field that is still unexplored (Healy and Serafeim, 2014; Luo, 2005; Svensson, 2005). We concentrate on a firm's CSR performance as well as its financial constraints and investigate whether these two factors are potentially related to the risk of engaging in corruption. We use data from the international risk rating agency Global Ethical Standards Investment Services (GES) to measure CSR performance. We find that a firm's CSR performance helps to mitigate its exposure risk to corruption. Using the Kaplan and Zingales index to assess a firm's reliance on external financing (Kaplan and Zingales, 1997) we find that firms tend to be more at risk of corruption when they face higher financial constraints. We further show that the relationship between firms' CSR performance and firm-level corruption risk is particularly strong when board independence and financial performance are low.

Based on our novel insights, we can derive important practical implications for internationally operating organizations, governments, and society alike. Our findings provide fresh input for reporting and accounting strategies by showing that factors such as sustainability and financial accounting can help to combat corrupt business behavior. Organizations can make use of our results in the way that they can change their accounting policies considering their CSR performance and level of financial constraints in order to minimize corporate risk of corruption. Shareholders and stakeholders can assess a firm's CSR performance and financial circumstances to effectively evaluate corporate corruption risk. They can also much more effectively bring about a change in the organization's reporting and accounting strategy by improving these two factors in order to lower corruption risk. That the level of financial

constraints is kept low and CSR performance is kept high at the firm level should also be ensured by legal institutions within the scope of anti-corruption laws.

2. Literature review

From a criminological point of view, corruption is the criminal misuse of social or economic power for personal objectives (Rodriguez et al., 2006). In line with Luo (2005), we define corruption with a strong reference to an organizational framework, namely as the "illegitimate exchange of resources involving the use or abuse of public or collective responsibility for private ends (i.e. gains, benefits, profits or privileges)" (Luo, 2005). Private ends, in this context, are often driven by organizations' interest. Our definition of firm-level corruption further considers the risk of engaging in corrupt activities due to a corrupt operational environment.

Considering the effects of corruption, it can be said that investors and financial markets place a high value on socially responsible and transparent behavior. In other words, they penalize firms that act irresponsibly, non-sustainably or even in a corrupt manner with unfavorable market price trends (Elsayed and Hoque, 2010; Jo and Harjoto, 2012; Lander and Auger, 2008; Siegel and Vitaliano, 2007). Firms that operate knowingly in unlawful and corrupt environments can cause critical damage to their reputation and corporate governance (Braam et al., 2015; Keig et al., 2015; Luo, 2011; Serafeim, 2014).

In addition to examining the consequences of corruption, prior research has also attempted to explain its causes. Predominantly on the macro level, scholars have shown major interest in economic, political, or cultural factors (Butler et al., 2009; Getz and Volkema, 2001; Mauro, 1997; Svensson, 2005; Tanzi and Davoodi, 1998). However, the identification of internal forces of corruption that are potentially related to strategic organizational behavior has not been the main focus of prior research (Healy and Serafeim, 2014). A firm-level perspective on the

determinants of corruption is particularly important as it offers new ways to analyze as well as understand corporate corrupt activities and the possible impacts of organizational factors on corruption (Luo, 2005; Svensson, 2005). The limited research on the organizational factors driving firm-level corruption has predominantly attempted to explain a firm's governance and its relationship with corruption and/or a firm's performance and its relationship with corruption (Beck et al., 2005; Garmaise and Liu, 2005; Nguyen and van Dijk, 2012; Wu, 2005).

Investigating governance quality and its impact on firm-level corruption, Nguyen and van Dijk (2012) compare private with state-owned firms in Vietnam. They quantify corruption according to a corruption severity perception survey from 2005 and find that corruption harms economic growth as it favors the state sector at the expense of the private sector. They demonstrate that improving the quality of local public governance would help mitigate corruption within organizations and even stimulate economic growth. The conclusion that better governance can be used as a strategic factor to reduce corrupt activities, including bribery within firms, is also supported by (Wu, 2005). He utilizes Transparency International's CPI of 2002 as a measure of corruption and finds that improved corporate governance leads to higher dividend payments. However, this effect only occurs in countries with high levels of corruption. Watson and Hirsch (2010) discuss which features of corporate governance may cause corruption by reviewing a sample of firms in New Zealand. They conclude that insufficient corporate governance can lead to information asymmetries and conflicts of interest within firms and thus foster corporate corruption. Therefore, well-governed organizations show a lower risk of engaging in corruption. According to Luo (2005), firm-level corruption is actually performed by managers or employees on behalf of the organizations. Illicit actions by managers or employees are particular frequent when corporate morale and transparency is both low. The resulting strategic and organizational deficiencies, including poor business ethics and mismanagement, may result in ethical and social deterioration. In order to effectively prevent these risks and especially the

risk of engaging in corruption, firms have to implement a strategic architecture that monitors and rectifies all illegal behavior. This organizational architecture should be based on an ethical corporate culture, a sustainable organizational structure, and an effective compliance system. It can therefore be presumed that good CSR performance may support organizations' fight against the risk of engaging in corrupt activities.

To build an empirical framework that accounts for firm performance and its relationship with corruption, Luo (2011) investigates financial factors such as investment commitment, market risk and firm growth. He utilizes Transparency International's CPI as well as the survey responses of top executives with regard to perceived corruption in China and shows that investment commitment is significantly negatively associated with corruption, whereas export market orientation is positively associated with corruption perception. To investigate a firm's financial value, measured in investments and market risk, and its impact on corruption, Garmaise and Liu (2005) match a sample of international firms with Transparency International's CPI. Each firm is given the CPI score of the country in which the firm is located. Corruption is found to reduce firm cash flows by increasing firm betas and distorting investment. The influence of financial, legal, and corruption obstacles on an firm's growth was further examined by (Beck et al., 2005). Using a dataset based on WBES responses for over 4000 firms in 54 countries, they measure corruption using the ICRG index. Beck et al. (2005) show that firm growth is significantly negatively affected by corruption, particularly by the amount of bribes paid. This effect is exceptionally pronounced for small and medium-sized firms, indicating that small and medium-sized firms have more problems coping with corruption than large firms do. The above mentioned literature shows that firms are more likely to be corrupt when their financial performance and growth are poor. Therefore, firms' financial limitations may also be related to firm-level corruption risk as corruption risk increases once financial conditions tighten.

When comparing methodological approaches of prior studies, it emerges that the majority refer to country measures, such as Transparency International's CPI or the World Bank's CCI, when measuring corruption risk since firm-level corruption indices are limited in scope (de Jong and van Ees, 2014; Healy and Serafeim, 2014; Judge et al., 2011; Lambsdorff, 2007). However, the perceptions which such indices rest upon do not necessarily reflect reality as they may be biased by a respondent's particular cultural background (Windsor and Getz, 1999). Still, they do improve the general understanding of corruption, especially since cross-country corruption can never be directly determined. Consequently, such perceptions are the only way of interpreting corruption on a country basis. However, on the firm level, these indices must be used with care. Especially taking into account the potential obstacles caused by irregularities that a business may face, respondents are likely to have differing views due to their differing personal understanding of corruption. Even across managers, cultural differences induce systematic behavioral differences in corporate decision-making (Dyreng et al., 2010; Hooghiemstra, 2010; Okpara, 2014). Perception indices are therefore unsuitable for cross-national comparisons on the firm level. Compared to country-level indices, regularly published corruption indices on firm level are almost nonexistent. Presently, only Transparency International offers an index that measures firm-level corruption and topic-related reporting. Hereafter, this firm-level index shall be referred to as the TI index. However, the survey of the world's 105 largest publicly traded firms was first conducted in 2012. Since then, Transparency International has provided only one updated version of its TI index, namely in November 2014 (Transparency International, 2014).

3. Hypotheses development

Corporate social responsibility as an essential attribute of organizations and its relationship with the firm-level risk of engaging in corruption has not been conclusively examined (Watson and

Hirsch, 2010). Furthermore, this relationship is far from intuitively clear. According to Koehler (2014), most corporate Foreign Corrupt Practices Act (FCPA) enforcement actions involve firms that are not only industry leaders but also win awards for being among the "world's most ethical." From a researchers' perspective, the empirical shape of the relationship between CSR and firm-level corruption is therefore especially interesting.

According to stakeholder theory, firms have to satisfy many constituents such as workers, customers, suppliers, and communities as their support may have a direct effect on firms' outcome (Freeman, 1984). Firms' financial performance is, therefore, proportionally related to the satisfaction of these various stakeholder groups (Jones, 1995). Thus, firms need to act in a socially ethical way to be accepted within society (Gray et al., 1995; Rose-Ackerman, 2002). The common concepts of CSR capture the public's most important concerns regarding business and social relationships and incorporate not only stakeholder theory but also business ethics, corporate social performance, and corporate citizenship (Argandoña and Hoivik, 2009; Carroll, 1999). From the point of view of the firm, CSR represents a set of moral duties towards society that the firm assumes as a result of its economic, social, political, and ethical reflection (Argandoña and Hoivik, 2009). Thus, CSR includes instances where the firm goes beyond compliance by engaging in actions that advance a social cause (McWilliams and Siegel, 2001). Management uses CSR to meet its ethical and social duties to its stakeholders and thus achieve corporate goals on the market (Jo and Harjoto, 2012; McWilliams et al., 2006). Firms that are reputable thanks to their social responsibility maximize their internal and external stakeholders' trust, build social capital, lower transaction costs, and therefore minimize uncertainty about their financial performance (Orlitzky et al., 2003; Siegel and Vitaliano, 2007). A firm's CSR performance provides a unique "lens" through which to better understand how a firm reacts to its global economic environments (Rodriguez et al., 2006). If a firm engages in corrupt and criminal behavior, this can be seen to be in obvious contrast to a firm's respect for its social

responsibilities and ethical obligations (Keig et al., 2015; Rose-Ackerman, 2002). According to Watson and Hirsch (2010) as well as Wu (2005), firms are likely to engage in unethical and uncooperative behavior when CSR within a firm fails. Therefore, we expect high ethical standards to lower firms' risk to participate in corrupt activities. We define our first hypothesis as follows:

H$_1$: *CSR performance is negatively associated with firm-level corruption risk.*

Several prior studies have shown that firms' financial performance is associated with their tendency to engage in corrupt activities. Carretta et al. (2012) and Karpoff et al. (2014) document a negative empirical relationship between a firm's financial outcome and corruption. Garmaise and Liu (2005), Lyon and Maher(2005), and Spencer and Gomez (2011) find that firms operating in a corrupt environment are vulnerable to greater financial risk. Bennedsen et al. (2009) and Domadenik et al. (2014) document that bribery and thus corrupt behavior have a negative influence on a firm's sales. According to Beck et al. (2005) and Zhou and Peng (2012), the amount of bribes paid significantly negatively affect firms' growth. Overall, firms seem to be more likely to engage in corrupt activities when their financial performance and growth are poor. Therefore, it can be anticipated that financial limitations as an indicator of firms' accounting policies can also be related to firm-level corruption risk and that firms facing additional financial constraints and thus a strong reliance on external financing may be more likely to engage in corruption. We therefore hypothesize that:

H$_2$: *Financial constraints are positively associated with firm-level corruption risk.*

4. Research methodology

4.1. Corruption score

Since the purpose of this study is to empirically examine the relationship between organizational factors such as a firm's CSR performance as well as its level of financial

constraints and the firm-level risk of engaging in corrupt activities, we need a reliable and comparable corruption measure. However, the dimensions of corruption are a problem within this field of research (Judge et al., 2011). The recent TI Index is the first index to investigate the disclosure of corruption issues on the firm level. Within that investigation, transparency as the antidote to corruption is defined by reporting on anti-corruption programs, organizational transparency, and country-by-country reporting (Transparency International, 2014). Thus, a firm's reporting rating depends on voluntary as well as mandatory disclosure. It is scaled 0-10, with 0 reflecting low and 10 high transparency. The TI Index examines the level of corruption in the 105 largest publicly listed multinational firms. However, a major disadvantage is the short timeframe of the investigation and the fact that scores are only retrievable for a fixed set of firms and so cannot be reapplied to other datasets. Because the index is so recent, scores are only available for 2012 and 2014.

According to Judge et al. (2011), many empirical studies on corruption apply Transparency International's CPI or the World Bank's CCI as measures of corruption on a country basis. For the CCI, conducted on a yearly basis since 1996, the World Bank refers to 25 sources from 20 globally distributed institutions. It ranges from -2.5 to +2.5, with low values indicating high corruption and high values indicating better governance. The CPI has been quantified yearly since 1995 and reflects the perceived levels of corruption in countries worldwide. A CPI score of 0 indicates highly corrupt public sectors, while a score of 10 shows a country free of corruption. The index is derived from an extensive and comparable assessment of 13 data sources from 11 globally distributed expert risk agencies and surveys and is calculated as an unweighted average of all estimates for a particular country. Although perceptions cannot equate reality, there is confidence in and consensus regarding the informative value of the composite CPI (Lambsdorff, 2007). Even though perceptions may be biased by a respondent's particular cultural background (Okpara, 2014), they improve the general understanding of real

corruption levels. Moreover, actual levels of cross-country corruption cannot be directly determined, meaning that these perceptions are the only common denominator in understanding corruption. According to Lambsdorff (2007), CPI is, nevertheless, highly correlated to actual personal experiences of bribery. However, the score is only based on the country level; scores on single firms are not provided.

To solve the measurement problem of quantifying the risk of corrupt activities on a firm-level basis for a panel dataset, we define a list of keywords addressing common issues related to corruption. The keyword list is based on prior indices including WBES, BEEPS, and CPI that are often used within literature on corruption (Bennedsen et al., 2009; Campos and Giovannoni, 2007; Wu, 2005). We investigate the questionnaires and their results to identify the most commonly used words related with corrupt practices such as personal experience of bribery and additional payments (e.g., "bribe," "donation," "informal"), institutional and regulatory obstacles to businesses (e.g., "bureaucratic," "intervention," "penalty") as well as the general criminal environment (e.g., "abuse," "misuse," "undocumented"). We also include other standard reporting guidelines that incorporate concerns on corruption in their reporting framework such as the Global Reporting Initiative (GRI) as well as prior literature defining corruption (Aguilera and Vadera, 2008; Rodriguez et al., 2006, 2005; Youngdahl, 2013). We contribute to current literature by presenting a keyword list that covers over 200 words including nouns, verbs, and adjectives as well as their word families. The keyword list is available upon request.

In line with Dragomir (2010), Elsayed and Hoque (2010) and Ge et al. (2014) we assume that firms' disclosure practices reveal empirical evidence regarding their sustainability and accountability. We run a content analysis to quantify the ratio of words referring to corruption to the total number of words that firms use in their annual reports, presuming that firms refrain from reporting on issues related to corruption when exposed to a corrupt environment and

therefore to the risk of engaging in corrupt activities (Hooghiemstra, 2010; Newson and Deegan, 2002; Williams, 1999). This is in line with Verrecchia (1983)'s theory that managers are likely to withhold unfavorable disclosures, which has since been confirmed by empirical evidence (Dobler, 2008; Miller, 2002). Kothari et al. (2009) further show that managers consciously delay bad news as unfavorable announcements cause negative stock price reactions. By contrast, highly transparent reporting standards leave no room for information asymmetries. Prior literature using indices like TI Index, BEEPS, CPI, and CCI to measure corruption follows this assumption (Garmaise and Liu, 2005; Karpoff et al., 2014; Mironov, 2014; Wu, 2005). Following Transparency International's presumption that high corruption is given where reporting transparency is low (Transparency International, 2012), we define our score to measure high corruption risk by low transparency on corrupt topics. To measure corruption risk, we take the inverse of the ratio of words referring to corruption that we obtained in our content analysis. To be able to score corruption risk, we categorize the ratio of keywords into quintiles of ten with 1 (5) indicating high (low) volumes of reporting on corruption related topics and thus high (low) transparency on corrupt issues and thus low (high) risk of corruption engagement.

We use Diction, a computer-assisted program for quantitative and qualitative content analysis, to analyze firms' annual reports and the existence of information on corrupt activities in their mandatory and voluntary disclosures. Annual reports are used to measure the amount of reported information, as they are the primary source of information for investors, employees, and external institutions (Epstein and Freedman, 1994; Herawaty and Hoque, 2007; Patten, 1992). As they are subject to auditing, annual reports have greater credibility than any other type of media (Haniffa and Cooke, 2002; Neu et al., 1998). Since the analyses are based on a high-quality information source, the result is a representative and comparable firm-level corruption score.

4.2. CSR

To measure a firm's CSR performance, we use sustainability ratings provided by Global Engagement Services (GES), an established international rating agency specializing in socially responsible investments. The GES rating assesses both environmental and social firm risks. All ratings are measured on a 7-level scale ranging from C (high risk/low opportunities) via C+, B-, B, B+, and A- to A (low risk/high opportunities).

The environmental analysis, in particular, is based on international standards for environmental management and industry-specific key indicators for environmental performance. The environmental dimension includes two subcategories, environmental performance and environmental preparedness. Environmental preparedness captures the relevant efforts by management such as environmental certification, environmental policies and programs, implementation of an environmental management system, screening of suppliers, and environmental reporting. Environmental performance is assessed by means of 21 indicators including investments in renewable energies, product recycling, decrease in greenhouse gas emissions, and water usage. The social analysis is based on the United Nations' (UN) Universal Declaration of Human Rights, the UN Convention on the Rights of the Child and the International Labor Organization's Core Conventions. The social dimension includes employee, community, and supplier subratings. There are between three to six indicators for each subcategory. Employee criteria include, amongst others, a firm's policies on health and safety, discrimination, wages, and working hours; community criteria include corruption and local community involvement; supplier criteria measure potential risks relating to supply chains, reporting and progress evaluations, as well as program and management systems. To measure a firm's corporate social responsibility, we take the average of GES scores drawn from the two dimensions. To make use of the GES ratings, the alphabetical scores are uniformly

transformed to an integer scale ranging from 1 (Score C) to 7 (Score A) and are interpreted as a metric variable.

Including a reasonable selection of corporate sustainability issues makes GES ratings a reliable proxy for a firm's CSR performance. Risk rating schemes are preferable to firms' own environmental and social disclosures, as they are third-party assessments that do not rely on the firms' own reporting (Wood, 2010). Still, the measure is, just like those of other investment rating agencies, subject to criticism by (Chatterji et al., 2009). They point out that the validity of the measurement of management systems is limited. Often, employees' perceptions of their own firms' management practices varies greatly, which is indicative of the substantial challenges that rating agencies face. Additionally, it must be considered that firms with better CSR are more likely to communicate and report on CSR related issues. Although the equal weightings of indicators are arbitrary and the assignments of scores are at least to some extent subject to personal judgment, the rating process is highly transparent and reproducible (Lopatta and Kaspereit, 2014). The database contains ratings for *Morgan Stanley Capital International* (MSCI) World constituents from the end of 2003 until the present day. Ratings are conducted on a semi-annual basis with the aim of incorporating both ex post and ex ante dimensions of corporate risk and opportunity.

The majority of empirical studies use *Kinder, Lydenberg, Domini Research and Analytics* (KLD) ratings as a measure of CSR performance (Block and Wagner, 2013; Dhaliwal et al., 2011; El Ghoul et al., 2011; Guedhami et al., 2011). The most important advantage of the GES database over its main opponent KLD is that it covers the whole MSCI World universe instead of only the U.S. market (it includes firms from 26 different countries and various industries). A substantial body of literature on CSR performance has already used this database (Hassel et al., 2005; Lopatta and Kaspereit, 2014; Semenova et al., 2010; Semenova and Hassel, 2008). In

Europe, GES is listed among the top research agencies providing reliable CSR measures (Schäfer et al., 2006; Semenova and Hassel, 2014).

4.3. Financial constraints

In line with Livdan et al. (2009), we take "financial constraints" to mean frictions that prevent the firm from funding all desired investments. These frictions may be due to credit constraints or the inability to issue equity, a dependence on bank loans, or illiquidity of assets. To measure firms' financial constraints we refer to the Kaplan and Zingales index. The Kaplan and Zingales index is a key measure for a firm's degree of financial constraints as it quantifies a firm's reliance on external financing. Thus, high scores indicate a high degree of financial constraints. It is most often used in the literature investigating a firm's level of financial constraints (Di Giuli and Kostovetsky, 2014; Hong et al., 2012).

4.4. Sample

In order to be able to test the robustness of our corruption score on the firm level, we base our sample on Transparency International's list of large firms that were rated with regard to their transparency in corruption reporting in 2012. Thus, we limit our sample to the 105 worldwide largest firms. However, this is necessary to verify whether both measures manage to provide similar results and therefore to prove our self-defined corruption score to be robust. In contrast to Transparency International, which only started rating firms in 2012, we backdate annual reports for the preceding six years (2007-2012). As financial firms follow different reporting practices, we exclude them from the sample, leaving us with a unique sample of 79 firms over a period of six years. Financial data is taken from Compustat, corporate governance data from Asset4 provided by DataStream. If financial or governmental data was missing, we checked annual reports manually to fill in missing values. Annual reports were downloaded from the

firms' websites. Out of this sample, two annual reports were not available for download, leaving us with 472 observations.

4.5. Model specifications

To identify whether CSR performance and financial constraints influence firm-level corruption risk (H_1 and H_2), we propose the following model:

$$CORRUPTION_SCORE_{,t} = \alpha + \beta_1 CSR_{i,t} + \beta_2 KZ_INDEX_{i,t} + \sum \beta_c CONTROLS_{i,t-1} + \\ + \sum \beta_{ind} INDUSTRY_{i,t} + \sum \beta_y YEAR_{i,t} + \varepsilon_{i,t} \quad (1)$$

For firm *i* in time *t*, corruption risk is measured by the previously defined corruption score based on the content analysis of firms' annual financial reports (*CORRUPTION_SCORE*). The corruption score measures low levels of reporting related to information on corruption and thus a firm's exposure to the risk of corruption. CSR performance is measured by the CSR scores *(CSR_RATING)* provided by the international rating agency GES. To measure a firm's financial constraints, we use the Kaplan and Zingales index (*KZ_INDEX*). Our controls include several lagged financial performance indicators, including return on assets (*ROA*), leverage (*DEBT)*, book-to-market ratio (*BTM*), and cash (*CASH)*. All financials are calculated based on Di Giuli and Kostovetsky (2014). We also control for the possible limitation of our sample that large firms may be less likely to engage in corruption and may have better reporting strategies (Beck et al., 2005; Bennedsen et al., 2009; Williams, 1999). In line with Harstad and Svensson (2011), we control for a firm's size, quantified by the logarithm of total assets (*Ln_TA*). In line with Lambsdorff (2007) as well as Lander and Auger (2008), who state that board independence improves stakeholder dialogue as well as reporting transparency and can thus lower corruption risk, we control for board independence *(BOARD_IND).* To measure board independence, we consider whether the majority of board members are outside directors and whether the roles of chairman and CEO are split. The variable equals the ratio of the two dummy variables. We also

include La Porta et al. (2006)'s disclosure requirements index to measure the extent of disclosure requirements a firm has to meet (*DISCLOSURE_LAW*). Despite of the fact that large multinational firms are making their social reporting decisions in response to global information demands rather than the demands of their base countries (Newson and Deegan, 2002) it is important to control for existent disclosure regulations. According to Healy and Serafeim (2014), firms domiciled in countries with stronger disclosure requirements are likely to provide additional corruption reporting. In order to ensure that the *CORRUPTION_SCORE* is not driven by country-level corruption and following Judge et al. (2011), we additionally control for country-level corruption measured by *CPI*. For comparability purposes we take the inverse of CPI values where 0 stands for low and 10 for high corruption.

The model specification is ordinary least squares estimation with year and industry dummies based on Fama-French 12 industry definitions and with standard errors clustered by firm. The Fama-French 12 industry classification based on SIC codes was applied instead of two-level SIC codes as lower level industry classifications would have led to an inconveniently small size of sub-samples.

5. Results and discussion

5.1. Descriptive statistics

< Please insert Table 1 about here >

We plot summary statistics in Table 1. Panel A shows that the *CORRUPTION_SCORE* mean equals 2.9958. The average *TI_INDEX* is 5.0405, indicating that our firm sample's average transparency value is located approximately in the center of the Transparency International's transparency scale. A *CPI* mean of 3.0013 suggests that the countries represented in our sample are fairly free of corruption. This is, however, not surprising as our firm sample includes the world's largest firms that are normally domiciled in developed economies. Nevertheless, even

if it is believed that corruption is more common in developing economies (Svensson, 2005), according to the *Organization for Economic Co-operation and Development* (*OECD Foreign Bribery Report*, 2014), bribes have been paid to officials in economies at all stages of development.

Concerning industry affiliations of firms in Table 1 Panel B, we find high risk of corruption based on our self-defined corruption score in the manufacturing, telecommunication and business equipment industries. It should not be forgotten that our corruption score quantifies the negative share of transparency on corruption issues published in corporate disclosure. Larger values therefore refer to lower transparency and thus a higher corruption risk, whereas smaller values resemble lower corruption risk at the firm level. Our summary statistics of corruption by industry, which show that firms in the manufacturing, telecommunication and business equipment industries face higher corruption risks, must, however, be interpreted with caution. These findings can be traced back to the nature of our sample and the fact that it contains world's largest firms. These firms operate worldwide and therefore participate in transnational operations. Thus, our findings are in line with those presented by Spencer and Gomez (2011) who show that internationally operating firms that have a strong import and export orientation face higher corruption obstacles.

As for country affiliations, in Panel C we find high corruption risk in China, the United States, Israel and South Korea. The lowest corruption levels are found for firms from Hong Kong, Switzerland and the United Kingdom. This is largely in line with Transparency International's assessment of country transparency measured by its CPI.

To investigate possible differences among legal frameworks, in Panel D, we classify the sample in common and civil law countries (Beck et al., 2005) . Univariate tests show that firms in common law countries show higher risks of corruption measured by our self-defined corruption score. Also, firms in common law countries have significantly lower CSR performance but are

less financially constrained compared to firms located in civil law countries. Based on the firm characteristics, firms from common law countries are, on average, smaller, have more cash, higher profitability, less debt, and a lower book-to-market ratio. Furthermore, firms from common law countries show stronger board independence and face stronger disclosure regulations.

< Please insert Table 2 about here >

We further analyze correlation coefficients of the variables that we consider in our regression models (Table 2). Our corruption score is positively correlated to Transparency International's Transparency in Corporate Reporting index (*TI_INDEX*) and CPI index at a significance level of at least 1%. In line with our hypotheses, a firm's CSR performance is negatively and a firm's level of financial constraints is positively correlated with firm-level corruption at a significance level of at least 1%.

5.2. Regression analyses

< Please insert Table 3 about here >

The purpose of this study is to examine organizational factors including a firm's CSR performance as well as the level of financial constraints and its vulnerability to corporate corruption risk. Model (1) in Table 3 shows pooled OLS regression outputs for hypotheses H_1 and H_2. Our findings support H_1 and confirm that firms' CSR performance is negatively related to firm-level corruption risk ($p<0.01$). Considering the terms of economic magnitude, our results indicate that a firm's CSR performance relates to a 0.415 unit decrease in corruption risk. Therefore, an increase in a firm's CSR performance by two levels relates on average to a decrease in corruption risk by almost a full point. For example, if Firm X is graded a four out of five on its corruption risk, an increase in CSR performance from B- to B+ would relate to a lower corruption score of about 3.

Firms that operate in a socially responsible manner would therefore be more interested in the sustainability of their activities rather than in short-term benefits that could potentially result from corruption at the firm level. According to our results, firms can lower their corruption risk by improving their CSR performance. As CSR performance refers to a firm's environmental and social performance, an improvement in environmental firm behavior, the promotion of labor practices, or strong local community involvement and investments, for example, could help to lower the risk of a firm's employees or managers engaging in corruption. Overall, organizational strategies referring to a firm's CSR performance can be adjusted accordingly in order to lower the risk of corporate corruption.

Our H_2 refers to a firm's financial constraints, which we expect to be positively associated with firm-level corruption risk. We find that firms that rely more on external financing, indicated by a high K-Z index, are significantly more at risk of engaging in corruption ($p<0.05$). A unit increase in the level of financial constraints relates to a 0.214 unit increase in corruption risk based on our self-defined corruption score. These findings are in line with Karpoff et al. (2014) and Garmaise and Liu (2005). Therefore, a firm should evaluate its financial situation on a regular basis as lowering the level of financial constraints may be an effective accounting strategy that minimizes the risk of corporate corruption.

Considering controls, we find that financial performance (*BTM*) is positively related to firm-level corruption risk. Our results show a significantly positive relation of *DISCLOSURE_LAW* as a measurement of country disclosure requirements (La Porta et al., 2006) to a firm's corruption score ($p<0.01$). Strong disclosure requirements are therefore associated with a higher level of corruption risk. The positive relationship between our corruption score and the level of legal enforcement may simply imply that high reporting quality is ensured through strong legal requirements and does not need to be ensured through additional disclosure. With strong

statutory disclosure requirements in place, there is no need for additional reporting in terms of high transparency on corrupt issues.

These findings have important implications for accounting policies and organizational change. They suggest that firms and their management can lower the risk of corporate corruption by adjusting their organizational strategy in the way of adopting and adhering to sustainability principles and reporting. Stronger compulsory compliance with corporate codes of conduct and thus business ethics would lower firm-level corruption risk even for firms operating in corrupt environments (Keig et al., 2015). This implication is of extraordinary importance for large and internationally operating firms. According to the stakeholder theory, to be accepted by society, firms have to act in a socially ethical way (Gray et al., 1995). The public is interested in corporate concerns such as business ethics, corporate social performance, business and social relationships, and corporate citizenship (Argandoña and Hoivik, 2009). These concerns are especially relevant for large and international firms as they have a wider range of stakeholders and thus more diverse responsibilities within markets and society. Hence, stakeholders specifically monitor these firms with regard to their ethical or, in the case of corruption, non-ethical behavior. However, employees of large firms are at particular risk of anonymity. In firms that are more complex in terms of the numbers of their subunits, hierarchies, and geographical distribution, there are more opportunities for managers and employees to engage in illegal activity (Gabbioneta et al., 2013). In these environments, employees can often operate in line with their own ethical principles and thus may, e.g., become vulnerable to corruption. For large and internationally operating firms' management it is therefore of particular importance not only to comply with the firm's codes of conduct, thus fulfilling their function as role models, but also to implement effective risk management and control mechanisms to ensure employees comply with the code of conduct. Furthermore, a firm's management can influence its corruption risk if it consciously adjusts its financial accounting. This includes a

firm's reliance on external funding as well as other financial accounting factors such as its book-to-market ratio. This outcome may be traced back to the notion that firms that have difficulties with refinancing are more likely to engage in corruption in order to maintain a stable business situation. Managers should therefore ensure that their firm does not rely too strongly on capital markets – not only to ensure stable financial performance but also in order to minimize their firm's risk of engaging in corrupt activities.

5.3. Subsample regressions

In order to verify further determinants of a firm's corruption risk, we test the effect of board independence on the relationship between CSR performance and financial constraints and firm-level corruption risk. CSR performance as well as board independence has been found to be negatively related to a firm's risk of engaging in corrupt activities. CSR improves stakeholder dialogue (Cormier and Magnan, 2007; Siegel and Vitaliano, 2007) as sustainable firms are more likely to act in the best interest of all stakeholders. Board independence also ensures low information asymmetries between a firm and its stakeholders (Lander and Auger, 2008). Thus, we further investigate the effect of high board independence on the relationship of CSR performance with firm-level corruption risk. High (low) board independence is measured with a dummy equal to one when board independence is above (below) the sample's mean by year. Model 2 in Table 3 shows results for firms whose board independence is lower than the sample's mean (*Low BOARD_IND*). Model 3 presents the firms with higher board independence than the sample mean (*High BOARD_IND*). According to our Model 2 in Table 3, the negative relationship between CSR performance and firm-level corruption risk is particularly strong for the subsample of firms with lower board independence ($p<0.01$). Our results indicate that firm-level corruption risk is not only related to CSR performance and financial constraints but that board independence also impacts on the relationship between corruption and CSR performance. However, board independence does not seem to have a

significant effect on the relationship between financial constraints and firm-level corruption risk.

We further test whether the relationship between a firm's CSR performance and its level of financial constraints and firm-level corruption risk is influenced by a firm's financial performance. We split our sample into high and low financial performance firms. Model 4 in Table 3 shows results for a subsample of firms whose ROA is lower than the sample's average yearly ROA (*Low ROA*) and Model 5 presents a subsample of firms with high ROA (*High ROA*). In Model 4 it can be seen that only when the overall financial performance is low improved CSR performance can help to lower a firm's risk of engaging in corrupt activities ($p<0.01$). Using *KZ_INDEX* instead of *ROA* shows similar results (results are not tabulated but available upon request).

6. Robustness

We test the robustness of our results in two ways. First, we replace our *CSR_RATING* with two alternative CSR performance measures. Second, we validate our self-defined corruption score. Results are presented in Table 4.

< Please insert Table 4 about here >

In order to directly address Chatterji et al. (2009)'s criticism that the validity of CSR ratings might be limited due to the subjectivism of employees who provide information about a firm's CSR performance, we validate our results with two alternative CSR performance measures. We refer to the firm's presence in a sustainability index such as *FTSE4Good* or *Dow Jones Sustainability Index* as an indicator of a firm's CSR commitment (*CSR_SUSINDEX*). Another advantage of this indicator is that it does not relate to the actual amounts of CSR information reported. Therefore, it addresses the problem that firms with better CSR might extensively

report on CSR related issues. In line with Dhaliwal et al. (2012), we further use the existence of a separate CSR report (*CSR_REPORT*) as an indicator for a firm's CSR activities. Both, the inclusion in a sustainability index (Model 1) as well as the disclosure of a separate CSR report (Model 2), are significantly negatively related to a firm's corruption risk. With CSR reporting being part of a firm's corporate governance strategy, our findings are in line with prior literature (Watson and Hirsch, 2010; Wu, 2005). Additional CSR disclosure reduces information asymmetries between stakeholder and management and ensures a good stakeholder dialogue and thus lower the risk of firm-level corruption (Cormier and Magnan, 2007; Richardson et al., 1999; Verrecchia, 1983).

To validate our corruption score and simultaneously check for the robustness of results, we first remodel equation (1) by replacing our firm-level corruption score (*CORRUPTION_SCORE*) with prevalent corruption indices such as Transparency International's TI Index and CPI. Again, for comparability purposes we take the inverse of the TI Index values where 0 (10) stands for high (low) reporting on corruption and thus high (low) transparency and low (high) corruption risk. Both, the *TI_INDEX* (Model 3) as well as *CPI* (Model 4) confirm the results tabulated above. These results not only prove our estimated model to be robust, but also our prior defined corruption score to be reliably applicable to research on corporate corruption.

As a further step to validate the effectiveness of our self-defined corruption score, we qualitatively evaluate annual reports of all firms in our sample in search of disclosure related to ongoing investigations of alleged violations of anti-corruption legislation. We generate a dummy variable equal to one whenever a firm reports to has been affected by such investigations in that reporting year (*INVESTIG*). We run a logit model with all prior included variables as well as our corruption score. By doing so, we test whether our corruption score effectively explains a firm's likelihood of being accused by legislators to be engaged in corrupt activities. Results are tabulated in Model 5 and confirm that our corruption score is significantly

and positively related to a firm's likelihood to be affected by investigations of potential violations of anti-corruption laws. I.e. firms under investigations of alleged corruption also show a significantly higher corruption score.

These results verify our prior assumption, namely that firms that face higher corruption risk consciously report less about topics related to corruption in their annual reports. This might be the case as a firm under investigation could face high litigation costs in near future. Thus, topics and financial risks related to corruption will be of particular importance to investors and other stakeholders interested in a firm's annual report and therefore must be extensively reported.

7. Concluding remarks

In this paper we investigate whether organizational factors such as a firm's CSR performance and the level of financial constraints are related to firm-level corruption risk. We contribute to current accounting literature by providing the first firm-level corruption score based on the content analysis of corporate disclosures. Our score is of value for future researchers as it fills the gap of a so far missing measure of firm-level corruption risk. Strong evidence for the explanatory power of our self-defined corruption score is provided when checking results using other measures of corruption risk, such as corruption indices on country-level as well as governments' investigations of compliance to anti-corruption laws within firms.

Furthermore, we present international, evidence-based results that a better CSR performance can effectively help to lower firms' exposure to corruption. We also find that firms tend to be more at risk of corruption when they are subject to strong financial constraints. We further show that the impact between firms' CSR performance on firm-level corruption risk is particularly strong when board independence and financial performance are low.

With regard to the practical implications for accounting and organizational change, it can be noted that according to our results, firms could minimize their potential exposure to corrupt

activities by changing their corporate strategies with regard to their CSR performance and financial flexibility. First, firms should aim at strong CSR performance and implement effective risk management and control mechanisms in order to ensure that the firm itself as well as its employees adheres to the firms' code of conduct. A further important objective for a firm's management should be to implement a financial strategy that is robust to external capital market developments. By defining accounting strategies that lower the risk of firm-level corruption, our results are not only helpful to firms and its management but also to legal institutions. The firm-level dimension of corruption is particularly important for regulators since an organization is the basic unit of corrupt practices (Luo, 2005). As most corrupt activities take place between profit-driven organizations and government officials, corruption can be fought effectively within society only if organizations resist corrupt practices.

Our research is limited by the fact that we utilize Transparency International's list of 105 worldwide largest firms. Yet we had to utilize this dataset, as it is the only one to provide firm-level corruption measures. We do so in order to be able to reliably test for the robustness of our self-defined corruption score. Further research on firm-level corruption should therefore take this limitation into consideration, and rest upon a larger set of diverse firms. Future research should also look for alternative ways to measure a firm's corruption risk. We base our measure of corruption risk on a firm's financial disclosure related to corrupt topics. However, potential discrepancies between disclosure and actual risk performance have not been investigated.

In closing, it can be said that the research agenda on firm-level corruption is still in its infancy and that a long list of other corporate factors, e.g., corporate governance quality as well as a firm's management characteristics that potentially affect corruption risk, need to be addressed in future research. Only if further evidence on the firm-level determinants of corruption is provided, research can start paying attention to the possibility of predicting firm-level corruption. Our corruption score is a first step in that direction as it can be used to investigate

whether firms' corruption risk can be successfully assessed on the basis of corporate reporting ex ante.

8. References

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Corruption, corporate social responsibility and financial constraints: Firm-level evidence

Tables

Table 1. Summary statistics

Panel A: Summary statistics									
Category	Variable	No.	Mean	SD	Min	P25	Median	P75	Max
Corruption indices	*CORRUPTION_SCORE*	472	2.9958	1.4157	1.0000	2.0000	3.0000	4.0000	5.0000
	TI_INDEX	79	5.0405	1.3331	1.7000	3.9000	5.1000	6.0000	8.1000
	CPI	472	3.0013	1.4215	1.0000	2.3000	2.7000	2.9000	7.9000
CSR	*CSR_RATING*	405	4.1160	0.8259	1.0000	4.0000	4.0000	4.5000	5.5000
	CSR_SUSINDEX	472	0.6419	0.4799	0.0000	0.0000	1.0000	1.0000	1.0000
	CSR_REPORT	472	0.8835	0.3212	0.0000	1.0000	1.0000	1.0000	1.0000
Financial constraints	*KZ_INDEX*	472	-0.0402	1.2493	-2.5371	-0.9077	-0.0023	0.7099	5.3599
Controls	*ROA*	472	0.0891	0.0513	-0.0254	0.0518	0.0836	0.1189	0.2228
	DEBT	472	0.2173	0.1255	0.0000	0.1323	0.2106	0.2840	0.6210
	BTM	472	0.5199	0.4986	0.0122	0.2382	0.3847	0.6093	3.0807
	CASH	472	0.1160	0.1101	0.0058	0.0465	0.0764	0.1422	0.5309
	Ln_TA	472	11.5532	1.6982	4.9380	10.6757	11.4420	12.0451	18.3521
	BOARD_IND	472	0.6716	0.3212	0.0000	0.5000	0.5000	1.0000	1.0000
	DISCLOSURE_LAW	472	0.7886	0.2283	0.2500	0.6700	0.8300	1.0000	1.0000

Table 1. Summary statistics (continued)

Panel B: Corruption score by industry (Fama-French classification)	No.	Mean	SD
Consumer, Non-Durables	41	2.9512	1.4824
Consumer, Durables	12	2.8333	0.5774
Manufacturing	18	3.8333	1.2948
Energy	89	2.8764	1.3040
Chemicals	36	2.3889	1.0764
Business Equipment	66	3.6364	1.3084
Telecommunication	42	3.6667	1.3004
Utilities	24	1.6667	0.7020
Trade	30	3.3333	1.1547
Healthcare	66	2.8030	1.5613
Others	48	2.6875	1.5866

Panel C: Corruption score by country	No.	Mean	SD
Australia	6	1.6667	0.8165
Austria	6	3.0000	0.0000
Belgium	6	2.3333	0.5164
Brazil	12	3.4167	0.7930
China	6	4.6667	0.8165
France	36	2.1667	0.8783
Germany	36	1.5833	0.5542
Hong Kong	6	1.0000	0.0000
India	11	1.6364	0.5045
Israel	6	4.0000	0.0000
Italy	12	1.7500	0.6216
Japan	18	2.5556	0.6157
Luxembourg	6	2.8333	1.7224
Mexico	6	3.8333	0.9832
Netherlands	12	1.5833	0.6686
Norway	6	3.3333	0.8165
Russia	6	2.6667	1.3663
Saudi Arabia	6	3.8333	1.1690
South Korea	6	4.0000	0.0000
Spain	6	3.0000	0.8944
Switzerland	18	1.1111	0.3234
United Kingdom	42	1.5000	0.6344
United States	197	4.1117	0.9246

Table 1. Summary statistics (continued)

Panel D: Univariate tests								
	Civil Law			Common Law			Difference Test	
Variable	No.	Mean	Median	No.	Mean	Median	T-Statistics	P-Value
CORRUPTION_SCORE	204	2.3676	2.0000	268	3.4739	4.0000	-9.1128	0.0000
TI_INDEX	34	4.7529	4.1000	45	5.2578	5.3000	-1.6862	0.0958
CPI	204	3.2618	2.7000	268	2.8030	2.7000	3.5151	0.0005
CSR_RATING	162	4.3333	4.5000	243	3.9712	4.0000	4.4213	0.0000
CSR_SUSINDEX	204	0.6961	1.0000	268	0.6007	1.0000	2.1460	0.0324
CSR_REPORT	204	0.8873	1.0000	268	0.8806	1.0000	0.2229	0.8237
KZ_INDEX	204	0.3095	0.1462	268	-0.3065	-0.2932	5.4667	0.0000
ROA	204	0.0700	0.0700	268	0.1036	0.0954	-7.4361	0.0000
DEBT	204	0.2355	0.2142	268	0.2034	0.1996	2.7725	0.0058
BTM	204	0.6520	0.4872	268	0.4194	0.3297	5.1541	0.0000
CASH	204	0.0857	0.0609	268	0.1391	0.0922	-5.3779	0.0000
Ln_TA	204	11.8656	11.6382	268	11.3155	11.0532	3.5284	0.0005
BOARD_IND	204	0.6495	0.5000	268	0.6884	0.5000	-1.3051	0.1925
DISCLOSURE_LAW	204	0.5697	0.5800	268	0.9553	1.0000	-33.2413	0.0000

Note: To alleviate potential problems associated with extreme outliers, we winsorize all the continuous variables at the 1st and 99th percentiles.

Table 2. Pearson correlation coefficients

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	*CORRUPTION_SCORE*	1.0000												
2	*TI_INDEX*	0.4765**	1.0000											
3	*CPI*	0.1695**	0.2353*	1.0000										
4	*CSR_RATING*	-0.3811**	-0.3711**	-0.1462**	1.0000									
5	*CSR_SUSINDEX*	-0.2553**	-0.2862*	-0.2505**	0.3406**	1.0000								
6	*CSR_REPORT*	-0.2626**	-0.2786*	-0.2531**	0.6109**	0.4587**	1.0000							
7	*KZ_INDEX*	0.1215**	0.0805	0.2911**	-0.1323**	-0.2379**	-0.3186**	1.0000						
8	*ROA*	0.0619	0.0229	0.0094	0.0053	-0.0386	0.0161	-0.4996**	1.0000					
9	*DEBT*	-0.0254	-0.0487	0.0662	0.0417	0.0581	0.0073	0.4450**	-0.3420**	1.0000				
10	*BTM*	-0.1057*	-0.1354	-0.0568	-0.1450**	-0.1245**	-0.1548**	0.1279**	-0.3666**	-0.0012	1.0000			
11	*CASH*	0.1314**	0.2915**	-0.0757	-0.1560**	-0.0943*	-0.0435	-0.2279**	0.3426**	-0.3359**	-0.2818**	1.0000		
12	*Ln_TA*	-0.0116	0.1500	0.2291**	0.2749**	-0.1743**	0.2402**	0.1171*	-0.1929**	0.0737	0.0025	-0.0924*	1.0000	
13	*BOARD_IND*	-0.1851**	-0.1972	-0.0712	0.1939**	0.1102*	0.1736**	-0.0577	0.1831**	-0.0177	-0.1127*	0.0182	-0.0428	1.0000
14	*DISCLOSURE_LAW*	0.4397**	0.2743*	-0.1611**	-0.1648**	-0.0744	0.0204	-0.2252**	0.2589**	-0.1736**	-0.3369**	0.2869**	0.0448	-0.1543**

Note: **, and * indicate statistical significance at the 1% and 5% levels, respectively.

Table 3. Corruption and its relationship with CSR and financial constraints

	(1) Total Sample	(2) *Low BOARD_IND*	(3) *High BOARD_IND*	(4) *Low ROA*	(5) *High ROA*
	CORRUPTION_SCORE$_{i,t}$	*CORRUPTION_SCORE*$_{i,t}$	*CORRUPTION_SCORE*$_{i,t}$	*CORRUPTION_SCORE*$_{i,t}$	*CORRUPTION_SCORE*$_{i,t}$
CSR_RATING$_{i,t}$	-0.415***	-0.467***	0.009	-0.705***	-0.226
	[0.099]	[0.113]	[0.152]	[0.128]	[0.150]
KZ_INDEX$_{i,t}$	0.216**	0.050	0.378**	0.122	0.180
	[0.103]	[0.100]	[0.150]	[0.097]	[0.127]
Controls					
ROA$_{i,t-1}$	0.732	1.200	1.357		
	[1.840]	[1.992]	[2.180]		
DEBT$_{i,t-1}$	0.217	1.041	-0.631	1.133	1.367
	[0.693]	[0.764]	[1.024]	[0.848]	[1.320]
BTM$_{i,t-1}$	0.336**	0.285	-0.195	0.262	0.174
	[0.155]	[0.193]	[0.280]	[0.171]	[0.558]
CASH$_{i,t-1}$	-0.142	-0.497	1.322	-0.496	0.072
	[0.819]	[0.989]	[0.959]	[1.147]	[1.287]
Ln_TA$_{i,t-1}$	0.101	-0.047	0.603***	0.085	0.317*
	[0.079]	[0.075]	[0.151]	[0.097]	[0.177]
BOARD_IND$_{i,t-1}$	-0.520**			-0.144	-1.101**
	[0.244]			[0.232]	[0.543]
DISCLOSURE_LAW$_{i,t}$	4.009***	4.407***	3.097***	3.299***	4.352***
	[0.434]	[0.456]	[0.608]	[0.458]	[0.655]
CPI$_{i,t}$	0.095	0.451**	-0.021	-0.027	0.136
	[0.126]	[0.182]	[0.069]	[0.137]	[0.156]
Constant	0.764	-0.405	-4.659**	1.797*	-4.297***
	[1.032]	[0.912]	[1.762]	[1.041]	[1.461]
Time	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
Model	OLS	OLS	OLS	OLS	OLS
Observations	405	233	172	233	172
R-squared	0.591	0.599	0.665	0.575	0.634

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Robust standard errors in brackets.

Table 4. Robustness checks

	(1) *CORRUPTION_SCORE*$_{i,t}$	(2) *CORRUPTION_SCORE*$_{i,t}$	(3) *TI_INDEX*$_{i,t}$	(4) *CPI*$_{i,t}$	(5) *INVESTIG*$_{i,t}$
CORRUPTION_SCORE$_{i,t}$					0.264**
					[0.113]
CSR_RATING$_{i,t}$			-0.709***	-0.552**	-0.791***
			[0.178]	[0.210]	[0.265]
CSR_SUSINDEX$_{i,t}$	-0.537**				
	[0.244]				
CSR_REPORT$_{i,t}$		-0.623*			
		[0.357]			
KZ_INDEX$_{i,t}$	0.112	0.132	0.201	0.747***	-0.230
	[0.109]	[0.116]	[0.263]	[0.167]	[0.245]
Controls					
ROA$_{i,t-1}$	-2.160	-1.670	-0.799	-3.877*	-2.925
	[2.015]	[2.141]	[3.977]	[2.281]	[3.463]
DEBT$_{i,t-1}$	-0.108	0.075	-2.853*	2.381*	-1.086
	[0.854]	[0.873]	[1.554]	[1.412]	[1.625]
BTM$_{i,t-1}$	0.094	0.139	-0.302	-0.145	0.346
	[0.187]	[0.188]	[0.298]	[0.214]	[0.437]
CASH$_{i,t-1}$	-0.519	-0.359	0.011	-10.330***	1.592
	[0.881]	[0.925]	[1.374]	[2.655]	[2.207]
Ln_TA$_{i,t-1}$	-0.103	-0.058	-0.011	0.071	-0.641***
	[0.079]	[0.076]	[0.178]	[0.101]	[0.198]
BOARD_IND$_{i,t-1}$	-0.228	-0.191	-0.293	0.449	1.256***
	[0.272]	[0.280]	[0.457]	[0.528]	[0.449]
DISCLOSURE_LAW$_{i,t}$	3.220***	3.277***	1.963**	3.272***	-2.687**
	[0.578]	[0.573]	[0.880]	[0.502]	[1.138]
CPI$_{i,t}$	0.256**	0.238*	0.298*		0.407***
	[0.118]	[0.127]	[0.155]		[0.149]
Constant	1.794	1.444	9.797***	2.071	3.060
	[1.563]	[1.469]	[2.620]	[1.313]	[2.896]
Time	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes
Model	OLS	OLS	OLS	OLS	Logit
Observations	472	472	68	405	363
R-squared	0.408	0.399	0.527	0.653	-

Note: Due to data availability of the TI Index the regression only comprises the year 2012. In the regression with CPI all variables are country means. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Robust standard errors in brackets.