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Corporate social responsibility and corruption risk: A global perspective

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ABSTRACT

This paper extends our knowledge on corporate corruption risk by examining whether and to what extent corporate social responsibility (CSR) affects firm-level corruption risk. Using a cross-country sample of major multinational firms, we find that firm-level CSR mitigates corruption risk. On closer examination, we find that the relationship between CSR and corruption risk is mediated by country-level variables such as institutional quality, protection of minority shareholders' rights, stock market development and freedom of the press. Further, we find that in emerging countries, CSR mitigates corruption risk only when the country-level institutional quality is high and citizens enjoy press freedom. Our findings suggest that both formal institutions and the quality of civil society influence the effect of CSR on corruption risk. Our results remain robust to controls for endogeneity and potential sample selection bias.

1. Introduction

A number of researchers suggest that corporate social responsibility (CSR) represents a commitment to social good (Fombrun, 1996) and also creates a positive image of the firm resulting in various advantages. However, this commitment to social good also restricts managers' greed. Gao et al. (2014) suggest that CSR-conscious firms engage less in informed insider trading activity, often considered to be an act of greed and illegal expropriation of uninformed investors, due to the negative publicity arising from insider trading. Likewise, Kim et al. (2012) find evidence consistent with the view that socially responsible firms are more likely to avoid earnings and or real activities' manipulation and are less likely to face SEC investigations of GAAP violations.

According to World Bank, bribes paid by individuals and firms amount to \$1 trillion annually accounting for 5% of GDP (Healy and Serafeim, 2016). Thus the risk of corruption in the corporate sector is a very significant issue that needs to be tackled. Corruption risk is defined by Transparency International (TI) as the potential probability that corruption may occur and the costs associated with such corruption. Increased corruption risk means a higher potential for corruption or higher potential cost or both. Decreased corruption risk means the lower potential for corruption or lower potential cost or both. The CSR studies (Gao et al., 2014; Kim et al., 2012) suggest that firms that engage in socially responsible activities are less prone to corruption risk. However, no prior studies have examined this relationship.

In this study, we, therefore, examine the association between a firm's CSR's engagement and its corruption risk. Following Kim et al. (2012) and Gao et al. (2014), we suggest that ethical concerns drive managerial behavior and inhibit managerial self-serving activities. Thus, the primary research question we address is whether a firm's CSR engagement is associated with a reduction in its corruption risk. Firms could institute systems and processes to mitigate corruption risk. These anti-corruption practices are likely to

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reduce a firm's exposure to corruption risk.

Although "good" firms will have strong governance, less earnings management, high CSR practices and are good in other areas as well, they don't necessarily have to have the best anti-corruption practices. We can identify two situations under which "good" firms may not invest in anti-corruption efforts. First, when they believe that bribing is a cost of doing business. There exists a view among some corporate officials that one has to pay bribes to get work done, making a business case for indulging in corporate corruption. Wong (2009) carries the example of FARO Technologies Inc., which faced a securities class action suit for alleged violation of Foreign Corrupt Practices Act. The officials of this firm made a formal statement suggesting that halting illegal payments would affect its China business. Second, when firms don't face strong peer pressure to comply with anti-corruption practices. This situation is more likely to exist in emerging markets where the environment is conducive to breeding corrupt and unethical practices.

In the context of corruption risk, we posit that greater CSR engagement will be associated with lower levels of corruption risk. CSR engagement creates a positive image of the firm benefiting the firm and its managers. Corruption, when it becomes public knowledge, generates negative publicity reducing the benefits of CSR engagement. We suggest that reputation will work as an informal enforcement mechanism, precluding managers of CSR conscious firms from engaging in self-serving, reputation destroying behavior. Thus, managers of CSR conscious firms have incentives to facilitate systems that preclude corruption in its operations. Further, it is recognized in extant literature that differences in ethical orientation of managers drive the heterogeneity of corporate practices (Bénabou and Tirole, 2010; Bertrand and Schoar, 2003). Therefore, CSR-conscious managers are less likely to engage in corrupt practices and are more likely to prevent other corporate officials from engaging in corruption. Thus, they are more likely to institute systems and procedures to limit corrupt practices in the firm.

The impact of CSR in restraining managerial self-serving behavior outlined in Kim et al. (2012) and Gao et al. (2014) has been shown to be empirically valid in U.S., a developed market which is characterized by strong institutions and an active civil society. It is not clear whether CSR is effective in restraining managerial malfeasance in emerging markets, which typically have significantly weaker institutions and lower legal protection of investors. Further, both Kim et al. (2012) and Gao et al. (2014) find that market plays a significant mediating role. By examining a cross-country sample composed of both emerging and developed markets, we hope to gain further insights on how institutional factors and market development mediate the impact of CSR on self-serving managerial behavior.

We generate two testable hypotheses regarding the effect of CSR engagement on firm-level corruption risk. First, we directly test whether there is an association between CSR practices of the firm and corruption risk. Following the prior literature,¹ we also consider two important components of CSR such as exchange capital (EXC) and moral capital (MRC) in our empirical tests. Second, we investigate the effect of CSR on corruption risk based on developed and emerging market sub-samples. Our tests offer insights on how the level of country-level variables such as institutional quality, market development, shareholder rights and press freedom impact the relationship between CSR engagement and corruption risk. Incorporating these country-level factors as moderating variables allows us to better understand the degree of relationship between CSR and corruption risk in developed and emerging markets. We argue that CSR will have a greater impact on corruption risk in countries which have better institutional quality, higher market development, better investor protection and higher levels of press freedom.

Our paper uses Transparency International's (TI) firm-level anti-corruption program (ACP) score released in 2013 and 2014 for 167 firms from 28 developed and emerging countries (TI, 2013a; TI, 2014). TI developed these scores utilizing the UN Global Compact Reporting Guidance framework for assessing the level of ethical compliance under its Business Principles for Countering Bribery program. The firm-level score with regards to anti-corruption practices is a measure of control of operational risk with respect to corrupt practices in the firm. We label TI's anti-corruption index as a corruption risk measure and use this term interchangeably with anti-corruption practices.

Our empirical results show that firms with greater CSR engagement have lower levels of corruption risk. First, our results are consistent with the view that firm-level CSR mitigates corruption risk. This result holds even after controlling for country-level institutional quality, stock market development, investor protection, freedom of the press and several firm-level control variables. This result is robust to controls for endogeneity. Further, our results show that moral capital is seen to have a stronger effect in curtailing corruption risk compared to exchange capital. Second, our empirical work highlights important differences between developed and emerging markets with respect to the effect of CSR engagement on corruption risk. The CSR-corruption risk relation is significant in developed markets but is insignificant in emerging markets. Third, several country-level variables exert a significant interactive effect with CSR to mitigate corruption risk. In emerging markets, the interaction between institutional quality (press freedom) and CSR exerts a mitigating effect on corruption risk. Fourth, in developed markets, the interaction of institutional quality (stock market development/investor protection) with CSR, exerts a mitigating effect on corruption risk. In particular, the interaction of the press freedom measure and CSR scores produces a much stronger impact on corruption risk in emerging markets. Since developed markets already have higher levels of freedom of the press, any additional increase appear to have no significant impact on corruption risk. Overall, these results show the importance of considering institutional settings while examining the effect of CSR on corruption risk.

The paper makes the following contributions to literature. First, this is the first paper that empirically tests the association between firm-level CSR practices and anti-corruption practices across a number of countries from developed and emerging markets. Second, we find that the quality of country-level institutional development influences the association between CSR activities and anti-corruption risk. These findings have strong policy implication for emerging markets. Third, we show that institutional quality, stock

¹ See for instance, Gupta and Krishnamurti (2016).

market development, investor protection and press freedom moderate the relationship between CSR activities and firm-level corruption risk. These findings have important implications for various stakeholders such as shareholders, investors, consumers and suppliers to understand what factors mitigate firm-level corruption risk. However, the findings of this paper should be interpreted with caution as the results are based on a small cross-sectional sample of firms.

The rest of the paper is organized as follows. In Section 2, we review the current literature and develop our hypotheses based on the theoretical underpinnings suggested by prior work. In Section 3, we describe our sample, data, and measurement of key variables used in this study. In Section 4, we discuss the methodology employed in the paper. Our empirical results are presented in Section 5. In Section 6, we report results of our robustness checks including tests to address potential endogeneity. The final section contains our concluding remarks.

2. Literature review and hypotheses

Our research focuses on the relation between corporate social responsibility and firm-level corruption risk. Although there are a few studies on firm-level corruption (Svensson, 2003; Fisman and Svensson, 2007; Fan et al., 2008; Aterido and Hallward-Driemeier, 2010; Asiedu and Freeman, 2009;), we know little about the impact of CSR on firm-level corruption risk as there are no comprehensive cross-country studies. Therefore, we first survey prior works on corporate corruption followed by corruption risk. This is followed by a discussion on CSR.

2.1. Literature on corruption risk

A number of studies have examined the cross-country determinants of corruption (See for instance, Husted and Estudios, 1999; Treisman, 2000; Gerring and Thacker, 2004; Lederman et al. 2005; and Freille et al., 2007). These studies generally conclude that country-level factors such as economic development, political institutions, civil society, and organizational culture significantly influence country-level corruption. It appears that national corruption outcomes are largely determined by formal and informal institutions acting on individuals and firms. The ethical behavior of individuals and firms is shaped by societal norms, which in turn is shaped by formal and informal institutions. In order to derive testable implications, we survey the literature focussing first on country-level factors followed by firm-level factors.

Prior research posits the view that a country's legal system plays a crucial role in determining the level of corruption existing in a country. In countries with effective legal systems, corrupt officials are more likely to get caught and punished. The work of Treisman (2000) suggests that effective legal systems mitigate corruption. Further, countries which follow common law system, tend to have lower levels of corruption. Therefore, we expect that the level of institutional quality, in particular strong investor protection, limits insiders' ability to acquire private control benefits which in turn should diminish firm-level corruption risk.

Another stream of research has examined the role of political institutions in controlling corruption. These studies suggest that democracy, freedom, and the pervasiveness of civil society groups in a country appear to mitigate the level of corruption (Treisman, 2000; Gerring and Thacker, 2004; Sung, 2004; Lederman et al., 2005). Prior research has identified three key characteristics of political accountability, that is associated with good governance, which reduces corruption (Persson et al., 1997; Rose-Ackerman, 1999; Djankov et al., 2003). First, political competition is a significant feature that influences country-level governance. One way of enshrining political competition is to have free and fair elections, which force politicians to face the electorate. Second, the level of checks and balances across different branches of government facilitate the prevention of abuses of authority, with different branches of government restraining each other. An effective system of checks and balances includes features such as the monitoring of executives by the legislature and the judiciary and oversight by parliamentary committees. The third feature of political accountability is transparency. Essential elements of transparency include freedom of the press and expression which have been shown to mitigate country-level corruption (Brunetti and Weder, 2003; Chowdhury, 2004; Méndez and Sepúlveda, 2006; and Freille et al., 2007).

Overall, these studies suggest that country-level institutional quality, particularly investor protection and political freedom have a significant bearing on corrupt behavior and therefore must be controlled in cross-country studies. Further, it appears that developed and emerging markets appear to have significant differences in institutional quality and this aspect deserves additional scrutiny.

There are few studies that examine the means by which firms may mitigate corruption risk. Healy and Serafeim (2016) examine Transparency International's ratings of self-reported anti-corruption efforts and find that firms with lower residual ratings have relatively higher media allegations of corruption. Based on this evidence, Healy and Serafeim (2016) conclude that TI's ratings of firm's self-reported anti-corruption efforts signal genuine efforts to fight corruption and are not just cheap talk. Krishnamurti et al. (2016) investigate corruption risk in the defence industry and find that institutional quality, governance systems and legislative oversight, explicit mechanisms to control corruption and cultural factors such as power distance and uncertainty avoidance influence firm-level corruption risk. They also find that, at the firm-level, factors such as visibility, and shareholding play a significant role in mitigating a firm's corruption risk. The above findings highlight the relevance of institutional settings in the context of firm-level corruption.

The primary motivation of this paper is to investigate how firm-level CSR mitigates firm-level corruption risk using a sample of developed and emerging countries. There are no prior studies that link a firm's CSR engagement to its corruption risk.

2.2. Literature on corporate social responsibility

A widely cited characterization of CSR, attributed to the World Business Council for Sustainable Development, is that "CSR is the

commitment of a business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve the quality of life.” This depiction of CSR, in our view, largely encompasses the Putnam (1993) definition of social capital. Sacconi and DegliAntoni (2011) reiterate the view that firms build social capital through CSR investments.

Several recent studies support the view that stakeholders are more likely to trust and cooperate with high-CSR firms. Eccles et al. (2014) provide evidence consistent with the view that high-CSR firms implement processes that consistently engage with stakeholders over the long term. Bénabou and Tirole (2010) also contend that stronger stakeholder engagement via CSR could potentially reduce the likelihood of short-term opportunistic behavior by managers. Gao et al. (2014) show that executives of high-CSR firms are less likely to trade prior to future news and profit less from insider trading in general than executives from low-CSR firms, while Kim et al. (2012) show that socially responsible firms are less likely to engage in earnings management. Collectively, these studies echo the view that shareholders, as well as other stakeholders, are likely to view high-CSR firms as being more trustworthy.

Thus a firm which scores high on CSR is expected to be ethically responsible and have low levels of corruption risk. There exists a large and rich literature on CSR reflecting different motivations for a firm to commit to CSR activities (Cheng et al., 2014). Although from a normative perspective, CSR engagement is seen as a positive act, several scholars point out to potential conflicts of interest. Barnea and Rubin (2010) suggest that a firm’s insiders may have incentives to overspend on CSR activities. They may be spending way over the level required to maximize the firm value. While the firm’s insiders benefit from the “warm glow” effect to their personal reputation as good corporate citizens, the (non-affiliated) minority shareholders may not support this expenditure. In a similar vein, Prior et al. (2008) suggest that managers may take deliberate actions that have negative consequences for shareholders such as manipulating earnings and cover this up by performing well in their social activities. If managers implement CSR activities from this perspective, CSR may not have any impact on the anti-corruption culture of the firm.

Given prior divergent views on the motives regarding CSR and the lack of prior work regarding the relation between CSR engagement and corruption risk, we extend the literature by examining whether a firm’s engagement in corporate social responsibility activities mitigates its corruption risk.

2.3. Hypotheses development

A firm with a high level of CSR is expected to institute mechanisms to mitigate corruption in its operations. Consistent with this view, Eccles et al. (2014) find that high sustainability firms (high CSR firms) have distinct organizational processes that emphasize formal stakeholder engagement processes. Further, these firms properly define the scope of stakeholder engagement ex-ante, identify the risks and opportunities, train their managers and report both internally and externally to the stakeholders. As a result of these measures, high CSR firms tend to be more long-term oriented and disclose more financial information. Consistent with this view, a recent strand of research has examined the CSR – risk linkage and has shown that firms may use CSR activities to mitigate risk. The empirical work of Kim et al. (2014) show that corporate social responsibility engagement effectively mitigates stock price crash risk. Hoi et al. (2013) find that firms with irresponsible social activities are associated with corporate tax avoidance acts.

The utilitarian perspective posits that firms pursue CSR activities to achieve performance objectives such as increasing profitability, returns on investment or sales growth (Baron, 2001; McWilliams and Siegel, 2001, Orlitzky et al., 2003). The altruistic view suggests that firms are self-motivated to deploy CSR initiatives irrespective of external pressures. A number of other studies show that CSR activities essentially improve the corporate image and strengthen various internal and external processes. First, CSR activities entail better engagement of the firm with its primary stakeholders (Attig et al., 2013). Second, CSR engagement generally results in an increase in corporate image and reputation (Carter, 2005; Sun and Cui, 2014). Third, firms with active CSR programs tend to disclose more information and this transparency is associated with lower levels of risk (Kim et al., 2014). Furthermore, CSR involvement can mitigate the likelihood of negative regulatory, legislative, or fiscal action (Berman et al., 1999; Freeman, 1984; Hillman & Keim, 2001). On the other hand, prior studies show that corruption risk substantially increases firm beta, the cost of debt, reduces firm value and distorts investments (see, Shleifer and Vishny, 1993, 1994; Mauro, 1995; Wei, 1997; Kaufmann and Wei, 1999; Ciocchini et al., 2003). Based on the above findings, one may conclude that it is internally consistent for firms with high levels of CSR engagement to institute systems and processes to maintain and enhance corporate reputation and image. It is therefore conceivable that high CSR firms will have systems and processes regarding corporate ethical standards in order to preclude bribery and corruption. On this basis, we propose that firms with greater CSR engagement should have lower corruption risk, other things being equal. Thus taking these views together, we formally state the following:

Hypothesis 1a. A firm with greater CSR engagement will have lower corruption risk, *ceteris paribus*.

As an extension of the above hypothesis, we propose that the corporate culture of a firm will be associated with its corruption risk. The role of corporate culture in firm-level corruption is difficult to assess directly. We, therefore, use the concept of moral capital proposed by Godfrey (2005) and Mattingly and Berman (2006). They bifurcate CSR into two components – technical and institutional CSR. Technical CSR focuses on a firm’s primary shareholders. Technical CSR -also known as – exchange capital arises from successful engagements with employees, good governance, and sound relations with customers. This intense engagement with primary shareholders, who have power and urgency, have the potential to create valuable exchanges. The other component of CSR is known as institutional CSR, which incorporates elements of community engagement and diversity and is also labelled as moral capital. Godfrey (2005) uses the concept of *men’s rea* from the legal literature to explain the role of moral capital in mitigating negative stakeholder actions when bad acts occur. We expect that the moral component of CSR is expected to have a stronger effect in mitigating firm-level corruption risk than the effect of exchange capital on corruption risk.

In our context, we view a firm with moral capital as suggestive of a firm with good intentions. Moral capital and exchange capital

are distinct components of CSR. However, moral capital is a stronger indicator of a firm's ethical orientation as activities that constitute a firm's investment in the moral capital do not involve reciprocity. In other words, these activities are not done with the objective of receiving a favor from the counterparty at a later date. On the other hand, activities contributing to a firm's exchange capital engagement is not truly altruistic and does involve an element of reciprocity. For instance, a firm's treatment of its employees is not entirely altruistic as the managers expect the employees to work harder or be more productive. Thus we suggest that a firm with higher moral capital will try to avoid ethical risks and therefore institute systems and processes with the objective of preventing bribery and corruption. We, therefore, propose the following hypothesis:

Hypothesis 1b. A firm with greater moral capital will have lower corruption risk, *ceteris paribus*.

Another contribution of our paper is the examination of the corruption risk mitigating role of CSR in emerging markets as compared to developed markets. We argue that markets intermediate the effect of CSR on corruption risk at the firm-level. The effect of national context on risk perceptions has been examined by [Makhija and Stewart \(2002\)](#). Free (or developed) markets are characterized by institutions that support competition and individual choice. Thus free markets enshrine institutional features such as property rights, contract laws, accounting regulations, bankruptcy laws, anti-trust laws and regulation, mechanisms for information disclosure and dissemination. This is in marked contrast to less developed or emerging markets where competition is often restricted. This has repercussions on the protection of property rights and flow of information. We argue that the presence of an active media, NGOs, activists and laws to protect consumers, investors and minority shareholders in developed markets increase the credibility of CSR engagement.

Emerging markets, on the other hand, are characterized by a flawed institutional environment. [Khanna and Palepu \(1997, 2010\)](#) posit that emerging markets often have institutional voids in that they lack social-political structures that enable market operations such as law enforcement mechanisms and functional consumer redressal systems. In developed markets, grassroots actors such as employees and consumers have the ability to engage in a competitive market armed with the requisite knowledge to monitor and challenge unethical corporate behavior. Informal institutional forces such as non-governmental organizations (NGOs) are often weak and do not function well in emerging markets.

However, recent transformation in some of the large emerging markets such as China, India, and Russia have resulted in increased institutional sophistication ([Zhao et al., 2014](#)). Rapid social transition in these large emerging markets has resulted in the top-down maturation of the regulatory system and a bottom-up diversification and intensification of grass roots activities. [Zhao et al. \(2014\)](#) suggest that these recent transformations have resulted in several CSR crises involving multinational enterprises being uncovered. In our context, whether pre-existing institutional weaknesses or the new surge in institutional sophistication influence CSR's impact on corruption is an empirical issue. While we acknowledge the role of this recent improvement in institutional sophistication, we believe that there would be some stickiness in institutional voids, which may prevent effective monitoring of corporate behavior. Further, it is not clear if the institutional sophistication alluded to in the work of [Zhao et al. \(2014\)](#) has propagated to other smaller emerging markets.

Further, in developed markets, a new breed of investors categorized as ethical investors, have become important. Also, a new class of consumers labelled as "ethical consumers" has emerged. These consumers will only purchase goods from firms that are deemed to be more socially responsible ([Servaes and Tamayo, 2013](#)). In response to the informational needs of these ethical consumers and investors, firms have appeared to monitor and provide information on a company's social performance. This increased scrutiny is likely to reduce the level of greenwashing in developed countries. Emerging markets are less likely to experience the same level of scrutiny as developed markets. As a result, falsely signalling via greenwashing is more likely to be prevalent in emerging markets. Thus due to the noisiness of the CSR signal, CSR engagement is less likely to be associated with a firm's corruption risk.

On balance, taking into account these different viewpoints, we, therefore, suggest the following hypothesis:

Hypothesis 2. The impact of CSR engagement on a firm's corruption risk will be significant in developed markets and insignificant for emerging markets, *ceteris paribus*.

Instrumental theories ([Friedman 1970](#); [McWilliams and Siegel, 2001](#); [Mackey et al., 2007](#)) imply that firms view CSR as another avenue for wealth creation. In our context, for CSR to impact a firm value or constrain managers' self-serving behavior, financial markets and institutions are expected to play a significant role. Ethical, political and integrative theories ([Carroll, 1979](#); [Jones 1995](#); [Phillips et al., 2003](#)) imply that firms/managers have a moral imperative to be honest, trustworthy, and ethical in their business processes and are therefore inclined to maintain a high standard of behavior. It is an empirical issue as to whether ethical, political and integrative theories are valid in emerging markets often characterized by poor institutional quality, and underdeveloped financial markets. The critical empirical issue is whether CSR influences corruption risk to the same extent in developed and emerging markets. Prior studies view CSR as a reputation building exercise ([Fombrun and Shanley, 1990](#); [Grow et al., 2005](#); [Verschoor, 2005](#); [Linthicum et al., 2010](#)). If a firm values its reputation, then when a firm engages in CSR, it has incentives to curb the managerial self-serving behavior. Whether the value of reputation arising from a firm's CSR engagement is equally constraining in developed and emerging markets is an empirical issue.

In order to tease out the role of institutions and markets, we consider the following country-level variables – institutional quality, shareholder rights, market development and press freedom. We expect these country-level variables to have a significant role in explaining the CSR engagement – corruption risk linkage. In particular, we expect these country-level variables to have a differing mediating influence on the CSR – corruption risk relationship in emerging and developed markets. We use two variables that capture formal and informal institutions in a country – institutional quality and press freedom. The institutional quality variable measures the quality of formal institutions and is a composite variable that encapsulates world bank indicators such as a country's corruption

Table 1
Sample selection.

	Full sample	Developed markets	Emerging markets
Initial sample	224	101	123
State-owned firms	(13)	(00)	(13)
Private firms	(12)	(00)	(12)
CSR data not available	(04)	(00)	(04)
Financial data not available	(28)	(08)	(20)
Final Sample	167	93	74

perception index, voice and accountability index, political stability index, government effectiveness index, regulatory quality index and the rule of law index. We argue that the quality of formal institutions will significantly influence the CSR-corruption risk.

The quality of civil society should also have a bearing on the level of CSR engagement. In addition to shareholder rights protection, we, therefore, include press freedom as a moderating factor influencing the importance of CSR on corruption risk in developed versus emerging markets. First, prior research has shown evidence regarding the ability of the press to influence CSR disclosures (Brown and Deegan, 1998, Clarkson et al., 2008). Second, a higher degree of press freedom is associated with a higher probability of detection of malfeasance. Thus, the prevalence of greenwashing is likely to be lower in countries with higher press freedom. The freedom of the press is higher in developed markets than emerging markets. In other words, in countries with higher levels of press freedom in emerging markets, CSR will be more strongly related to corruption risk.

In addition to institutional quality, the development of capital markets is also expected to influence the CSR-corruption risk relation. Stulz (1999) posits that market globalization can mitigate agency problems in countries with poor legal protection. For instance, by allowing foreign investors to take significant stakes in local companies and to monitor management, companies may overcome the problem of poor legal protection. La Porta et al. (1997, 1998) and Djankov et al. (2008) document that development of stock markets is another measure of institutional quality. Further Hail and Leuz (2006) find that legal enforcement is more effective in countries with better quality stock markets. We, therefore, use stock market development as another measure of the strength of country-level institutions in our study.

In well-developed financial markets, shareholder protection is expected to be better. The impact of CSR is expected to be better impounded in stock prices when minority shareholders' rights are better protected. Further, the impact of CSR on corruption risk may be mediated by the level of protection of shareholders.

3. Data and sample

3.1. Sample selection

Our sample includes firms covered in two reports of Transparency International (TI (2013a) and TI (2014) respectively). TI (2014) uses a sample of 101 largest multinational publicly listed firms based on the (i) Forbes list "The World's Biggest Public Companies", (ii) market value of firms and (iii) from a wide range of industries (for example, 25 percent of firms from Financials sector, 15 percent of firms from Oil & Gas sector and 14 percent of firms from Consumer Goods sector). TI (2013a) draws the sample of 123 firms from publicly listed companies based in emerging markets.

Table 1 shows details of our sample. We exclude 25 state-owned and private firms from the initial sample due to non-availability of publicly available information. We drop four companies due to necessary information on CSR variable not being available and 28 companies due to non-availability of financial data. This process leaves us with a final sample of 167 publicly listed firms which consists of the world's largest 93 publicly listed developed country multinational companies operating globally (published by the Forbes list "The World's Biggest Public Companies" and selected by market value calculated in May 2013) and 74 major multinational companies operating in emerging markets (selected based on the Boston Consulting Group list of Global Challengers 2011). We use 2013 and 2014 financial and accounting data of the sample firms to construct the variables required for conducting the empirical tests.

Our sample firms come from 28 different emerging and developed countries, indicating a rich representation of geographical, cultural, legal, and institutional diversity. Our sample includes 93 firms from the following 12 developed countries – Australia, France, Germany, Israel, Italy, Japan, Luxembourg, Norway, Spain, Switzerland, U.K., and the U.S. Our sample also includes 74 firms from the following 16 emerging market countries – United Arab Emirates, Argentina, Brazil, Chile, China, Colombia, Hungary, India, Indonesia, Mexico, Russian Federation, Saudi Arabia, South Korea, Taiwan, Thailand, and Turkey. Un-tabulated statistics show that the largest number of firms analyzed in our paper are located in the USA (25.75%), followed by China (10.78%) and India (9.58%) in the full sample. However, a number of countries such as Argentina, Colombia, Hungary, Israel, Luxembourg, Saudi Arabia and Taiwan just have one firm in our sample.² Although we use anti-corruption scores from TI (2013a) and TI (2014), to form our sample, we do not have a time-series. Our sample includes only two firms that are covered in both 2014 and 2013 reports.³

² Dropping these countries from the sample does not alter our empirical results.

³ First, we use the first reported score as the anti-corruption score. Second, we take the average of the scores from the two years. Third, we omit the two firms that

Using these sample firms, we investigate whether firm-level CSR practices mitigate corruption risk. We also empirically examine whether such a relationship is moderated by the country level variables such as investor protection and press freedom.

3.2. Definition of main variables

3.2.1. Anti-corruption program score

We use Transparency International's assessment of firms based on their reporting on anti-corruption practices. The scoring done by TI was based on the UN Global Compact – Transparency International *Reporting Guidance on the 10th Principle against Corruption*. It includes 13 questions; each one is allocated a score of 0, 0.5 or 1. Firms with full compliance get a score of 1.0, those with partial compliance are scored 0.5 and non-complying firms are scored 0. The maximum score is 13 points. The final score for each company is then expressed as a percentage of the maximum possible score (between 0 and 100 per cent). A score of 100 represents the lowest level of corruption risk.

We analyze the nature of questions covered in the questionnaire to evaluate what the score actually measures. We believe that it reflects a firm's disclosure of anti-corruption systems in place and top management's commitment to eliminate corrupt practices. The score, in our opinion, is the extent to which operational risk with respect to corrupt practices in the firm is controlled. Moreover, the score is assessed at the firm-level. Further, it appears that the questions are carefully worded to avoid potential country-level biases. The possibility of a firm falsely disclosing good practices while following bad ones cannot be entirely ruled out. We also cannot entirely rule out rater biases. However, we find that some firms in countries with strong institutions have low ratings. This provides some assurance that country-level biases do not overshadow the scoring process. Overall, our use of the anti-corruption index is further justified by the findings of Healy and Serafeim (2016) who report that firms with low residual corruption ratings have higher levels of future corruption allegations. We consider TI's anti-corruption index as a corruption risk measure and use this term interchangeably with anti-corruption practices.

3.2.2. Corporate social responsibility

To measure the CSR engagement of a firm, we use Thomson Reuters ASSET4 database, which gathers extensive, objective, quantitative, and qualitative Environmental, Social, and Corporate Governance data for more than 4700 firms located in 65 countries over the world (Ribando and Bonne, 2010; Salzmann and Soypak, 2015; Gupta and Krishnamurti, 2016). A number of prior studies use ASSET4 database to create a proxy for CSR engagement (see, Margolis et al., 2007; Servaes and Tamayo, 2013; Lys et al., 2015). Asset4 is owned by Thomson Reuters and primarily tracks the environmental, social, economic and governance (ESG) performance of firms across countries. Approximately 250 indicators are available for each firm. Asset4 collects firm-level performance indicators through a number of sources, including feedback from firms, research analysts, company websites, stock exchange filings, and other media outlets. The sources are closely scrutinized to verify the authenticity and quality of data. The coverage is potentially skewed towards large-sized firms as well-known firms are more likely to be covered by Asset4. Since this is the most comprehensive dataset, we use this in our research.

We construct our CSR index and its components (moral and exchange capital) at the firm-level based on the information provided by Asset4. We calculate CSR score as the equally weighted average of environmental, social, and corporate governance scores. In addition, we also compute moral (MRC) and exchange capital (EXC) components of CSR using data from the ASSET4 database. MRC is computed as the sum of scores on community, diversity and human rights components (Godfrey et al., 2009). EXC is calculated as the sum of scores on employee quality, training and development, and product responsibility components (Godfrey et al., 2009).

3.2.3. Shareholders' protection

To measure shareholder protection, we use the anti-director rights index (ADR) which was initially developed by La Porta et al. (1998) and further revised by Djankov et al. (2008). This index measures the rights granted to minority shareholders. We use the revised index because it addresses some of the concerns of the previously developed index with precise definitions for meeting each criterion of the index. This revised index takes values between one and five and is available for seventy-two countries. A lower (higher) value for a country implies a lower (higher) level of investor protection offered by that country.

3.2.4. Press freedom

A key institutional variable used in our study is press freedom (FPR) which is a proxy for the quality of civil society. The freedom of the press ratings are determined by evaluating scores using a set of questions that seek to capture the ways in which pressure can be placed on the flow of independent information without fear of repercussions. The ratings are conducted by Freedom House annually and each country receives a numerical score from 0 (the most free) to 100 (the least free). We use the scores computed by the Freedom House which have been used extensively in prior research.⁴

3.2.5. Institutional quality

We construct a comprehensive measure of institutional quality using commonly used world bank indicators. The composite index

(footnote continued)

are covered in both reports from the sample. Our empirical results remain qualitatively similar.

⁴ See for instance, D'Souza and Kaufmann (2013).

is derived from factor analysis of institutional quality variables comprising Corruption Perception Index (CPI), Voice and Accountability Index (VAC), Political Stability Index (POS), Government Effectiveness Index (GVE), Regulatory Quality Index (REQ) and Rule of Law index (RUL).⁵ We conduct factor analysis and the extracted first factor is labelled as the Institutional Quality Index (INQ).

3.2.6. Stock market development

Since Hail and Leuz (2006) find that legal enforcement is more effective in countries with better quality stock markets, we use stock market development as another measure of the strength of country-level institutions in our study. We measure stock market development as share market capitalization divided by GDP (SMG).

3.3. Descriptive statistics

Table 2 reports the mean and median anti-corruption index (ACP) and corporate social responsibility scores (CSR) for firms based on industry classification. The largest number of sample firms are in the Financials sector followed by Oil & Gas, Consumer Goods and Basic Materials sectors. For the overall sample, the mean ACP score is highest (73%) in the Healthcare industry while the lowest score (54%) falls in the Industrials sector. The mean CSR score shows that the Technology sector has the highest level of CSR score (83%) and the lowest score (58%) is observed in the Telecom industry. Developed market countries have the highest ACP score (89%) in the Basic Materials sector and lowest ACP scores (64%) in the Utilities sector. On the other hand, the mean CSR score (90%) is the highest in the Industrials sector and lowest (74%) in the Consumer Services sector. When we compare the ACP and CSR scores between developed countries and emerging countries samples, we find considerable variations in the key variables between these two groups. The Basic Materials sector has the highest ACP score (89%) in developed countries whereas the Technology and Telecommunication sectors have the highest ACP score (63%) in emerging countries. The highest CSR score in developed countries is reported in the Industrials sector (90%) whereas the Technology sector (81%) reported the highest score in emerging countries. The un-tabulated country-level variables for the full sample show that the highest average score for ADR is found in the Telecommunication sector while the lowest score is in the Utilities sector. The FPR score is highest in the Industrials sector (49%) and lowest in the Healthcare and Utilities (23%) sector. The INQ score is highest in the Consumer Services sector (69%) while it is lowest in the Basic Materials industry (54%). The SMG score is highest in the Consumer Services sector (110%) and lowest in the Utilities sector (50%). These statistics suggest that there is a wide variation in reported ACP, CSR, ADR, FPR, INQ and SMG scores across industries. We also substantiate this claim by observing the range for each of these key variables. We, therefore, include industry fixed effects in our empirical models. Table 3 reports the descriptive statistics for a number of key variables used in the paper for the full sample, and the developed and emerging market subsamples. Firms in developed markets seem to engage more in anti-corruption practices and socially responsible activities than firms in emerging markets. The mean (median) for ACP and CSR variables are statistically significantly higher for developed markets compared to emerging markets. The four main country variables reported in Table 3 show significant differences between developed and emerging markets. Developed countries have lower mean and median scores of press freedom (FPR) compared to emerging markets. Low scores indicate better freedom of the press. INQ is the institutional quality index, which represents the quality of institutions in a country. INQ is higher in developed countries as compared to emerging markets. The mean and median differences are statistically insignificant for ADR score but statistically significant for SMG between developed and emerging market subsamples. The majority of the control variables are statistically significantly different between developed and emerging markets except for ROA and LEV. The analysis of the mean and median test of differences for the control variables clearly shows the importance of analyzing the relationship between ACP and CSR for the two sub-samples. The list of variables used in our study and their definitions are provided in Appendix A.

We use a number of sources to collect the data necessary for analysis. The daily share price data and the daily values of the market index are collected from the DataStream database. These price/index data are used to calculate daily stock returns and the return on the market. The market value of equity and various accounting data, such as net debt, ROA and capital expenditure, are also collected from the DataStream database for each firm for the financial year prior to the release of TI reports. The information on the Anti-director Rights Index is obtained for 72 countries from Professor Andrei Shleifer's website (Department of Economics, Harvard University).⁶

3.4. Correlation matrix

Table 4 shows the correlation matrix for the main variables and a set of control variables used in the study. ACP score is significantly and positively correlated with CSR and ADR at the 1% level. The Pearson correlation between ACP and CSR is 0.55 and between ACP and ADR is 0.38. ACP and FPR have a negative and statistically significant correlation of -0.59 . Since low FPR scores indicate higher degrees of press freedom, it appears that press freedom has a significant influence on firm-level anti-corruption practices. INQ also has a positive correlation with ACP. These results indicate that institutional variables are key determinants of the anti-corruption score. The two components of CSR (moral capital and exchange capital) also have a similar significant positive correlation with ACP score. This positive and significant relationship implies that anti-corruption practices are significantly

⁵ Obtained from www.govindicators.org. See <http://data.worldbank.org/data-catalog/worldwide-governance-indicators>.

⁶ See the link: <http://www.economics.harvard.edu/faculty/shleifer/dataset>.

Table 2
Descriptive Statistics of ACP and CSR across Industries.

Country	No of firms	ACP					CSR				
		Mean	Median	StdDiv	Min	Max	Mean	Median	StdDiv	Min	Max
<i>Panel A: Entire sample</i>											
Basic Materials	20	67	83	27	15	96	67	70	17	31	87
Consumer Goods	20	63	73	27	19	96	64	69	27	10	94
Consumer Services	10	68	67	19	35	88	70	73	19	33	90
Financials	29	57	65	26	04	92	72	79	21	15	93
Healthcare	14	73	77	18	38	96	74	81	22	22	93
Industrials	18	54	58	27	8	85	63	72	27	12	94
Oil & Gas	25	71	77	21	19	100	76	80	13	46	92
Technology	16	71	73	17	31	96	83	90	13	51	94
Telecommunication	12	68	77	28	00	100	58	73	36	09	93
Utilities	03	64	73	26	35	85	82	79	06	77	89
<i>Panel B: Developed markets</i>											
Basic Materials	05	89	88	6	81	96	81	84	06	73	87
Consumer Goods	11	77	85	23	19	96	82	86	12	60	94
Consumer Services	08	72	77	18	35	88	74	81	19	33	90
Financials	20	67	69	17	31	92	77	84	19	15	93
Healthcare	12	78	79	13	54	96	81	84	13	47	93
Industrials	05	82	85	04	77	85	90	91	03	86	94
Oil & Gas	10	86	87	12	65	100	85	84	03	80	92
Technology	11	75	73	14	54	96	84	90	14	51	94
Telecommunication	08	70	77	20	35	100	76	87	28	9	93
Utilities	03	64	73	26	35	85	82	79	06	77	89
<i>Panel C: Emerging markets</i>											
Basic Materials	15	60	58	28	15	92	62	64	17	31	86
Consumer Goods	09	45	42	21	19	77	42	40	23	10	74
Consumer Services	02	52	52	19	38	65	56	56	13	47	65
Financials	09	34	23	28	4	77	59	53	20	38	86
Healthcare	02	40	40	3	38	42	29	29	11	22	37
Industrials	13	43	46	24	8	77	52	48	25	12	85
Oil & Gas	15	61	62	20	19	88	70	71	13	46	90
Technology	05	63	73	22	31	85	81	86	12	67	92
Telecommunication	04	63	79	42	0	92	22	21	13	10	37
Utilities	–	–	–	–	–	–	–	–	–	–	–

This table presents the mean, median, range, the minimum and maximum value of ACP and CSR across industries. ACP is the anti-corruption program score calculated by Transparency International for each firm. CSR is the corporate social responsibility score, which includes social, corporate governance, and environmental scores collected from Asset4 Thomson Reuters Database.

associated with a firm’s socially responsible behavior. In addition, the significant positive correlation between *ADR* and *ACP* also imply that the level of investor protection is associated with the propensity to institute anti-corruption practices. While there are several significant correlations between independent variables, none of them is high enough to cause multicollinearity. The highest Pearson correlations of 0.85 and 0.79 are observed between *CSR* and *MRC* and *CSR* and *EXC* respectively.

4. Methodology

We estimate the following regression model to examine the effect of *CSR* on the anti-corruption scores of the firms in our sample. In the following equation, the dependent variable is *ACP*, the anti-corruption score of the firms published by Transparency International. We use three different variables to measure *CSR* and its components as discussed in the Data and Sample section.

To test Hypothesis 1 and 2, we estimate the following regression model:

$$ACP_{it} = \alpha + \sum_{j=1}^3 \beta_j CSR_{j,i,t-1} + \sum_{k=1}^8 \gamma_k FC_{k,i,t-1} + \sum_{c=1}^4 \gamma_c CC_{c,i,t-1} + \sum \delta Industries + \varepsilon_{it} \tag{1}$$

where ACP_{it} is the firm-level anti-corruption programme score, *CSR* represents the corporate social responsibility score of the firm and is our main variable of interest. *FC* is the vector of firm-level control variables used to capture the effect of firm-level variation and *CC* is the vector of country-level control variables. Industry effects are also included in all the models.

We include a wide range of firm-level controls such as logarithm of total assets (*LTA*), return on assets (*ROA*), leverage (*LEV*), idiosyncratic risk (*IDR*), foreign sales ratio (*FSR*), book-to-market ratio (*BTM*), percentage of non-executive directors on the board (*NED*), capital expenditure ratio (*CAP*). It is expected that profitability, leverage, firm size, growth opportunities, idiosyncratic risk, foreign sales, board independence and capital expenditure will drive corruption risk. The empirical models control for the four

Table 3
Descriptive Statistics for the Full Sample and Developed and Emerging Market Sub-samples.

Markets		Full	Developed	Emerging	MW (t-test)
ACP	Mean%	64.93	75.23	52.00	5.84***
	Median%	(73.00)	(81.00)	(54.00)	(6.95)***
CSR	Mean%	71.09	80.17	59.67	6.89***
	Median%	(77.86)	(84.69)	(63.41)	(7.36)***
MRC	Mean%	66.38	78.42	51.25	8.07***
	Median%	(71.43)	(85.71)	(53.57)	(9.44)***
EXC	Mean%	66.89	73.81	58.20	5.59***
	Median%	(71.43)	(78.57)	(64.29)	(5.67)***
LTA	Mean	8.47	8.28	8.72	2.95***
	Median	(8.22)	(8.08)	(8.68)	(3.29)***
ROA	Mean%	9.85	9.61	10.15	0.55
	Median%	(8.96)	(8.80)	(9.02)	(0.44)
LEV	Mean%	17.67	18.48	16.66	1.37
	Median%	(15.99)	(16.99)	(12.02)	(1.01)
IDR	Mean%	1.11	0.86	1.42	7.17***
	Median%	(0.95)	(0.79)	(1.31)	(7.69)***
FSR	Mean%	50.57	54.68	45.41	1.62
	Median%	(54.21)	(55.63)	(51.81)	(1.86) [*]
BTM	Mean	0.76	0.73	0.80	1.15
	Median	(0.73)	(0.72)	(0.74)	(1.67) [*]
NED	Mean%	81.03	83.81	77.53	3.94***
	Median%	(85.71)	(88.89)	(79.48)	(2.31)**
CAP	Mean%	5.28	4.54	6.21	2.69***
	Median%	(3.89)	(3.32)	(5.00)	(2.46)**
INQ	Mean%	60.14	72.38	44.75	9.64***
	Median%	(59.00)	(78.80)	(47.60)	(16.26)***
SMG	Mean	0.83	1.00	0.62	7.69***
	Median	(0.70)	(1.15)	(0.45)	(6.23)***
ADR	Mean	3.49	3.54	3.44	0.91
	Median	(3.50)	(3.00)	(4.00)	(0.52)
FPR	Mean	37.79	21.48	58.28	8.87***
	Median	(25.00)	(21.00)	(54.50)	(16.85)***

This table presents the descriptive statistics for all variables for the full sample as well as developed and emerging markets sub-samples. All variables are defined in Appendix A.

country-level variables – institutional quality (*INQ*), share market capitalization divided by GDP (*SMG*),⁷ anti-director rights index (*ADR*) and freedom of the press (*FPR*) rating – in our regression models.⁸ We follow El Ghoul et al. (2017), El Ghoul et al. (2016), Healy and Serafeim (2016) and Krishnamurti et al. (2016) in choosing our control variables.

We also estimate the main regressions by including specific components of *CSR* such as *MRC* and *EXC* by replacing *CSR* in the model (1). We run separate regressions to isolate the effect of the specific *CSR* component. ε is the error term. Our subscripts denote the following: *i* represents the firm; *j* indexes the *CSR* construct used; *k* indexes the firm-level control variable; *c* represents the country-level variable, *l* indexes countries, and finally, *t* is the time subscript. Since we expect the independent variables to drive the anticorruption risk score, we have lagged all the independent variables.

To alleviate concerns of potential endogeneity arising from *ACP* and *CSR* (*MRC* and *EXC*) being determined by common factors, we use a two-stage least squares estimation using the instrument variables approach (Cheung, 2016). Prior research suggests that the level of *CSR* may vary considerably across countries and industries (Cai et al. 2011; Ferrell et al. 2016; Harjoto et al. 2015). Therefore, we use the lagged average country-industry *CSR* score as the instrument in the first stage regression. We similarly use the lagged average country-industry score of *MRC* and *EXC* as instrumental variables in the first stage of our estimations.

Our industry classification uses the GICS standard (Global Industry Classification Standard) which is an improved industry classification system jointly developed by Standard & Poor's and Morgan Stanley Capital International (MSCI) in 1991 to meet the needs of the investment community. Eq. (1) is estimated using White's (1980) correction procedure for heteroscedasticity.

We modify Eq. (1) to include the relevant interaction variables to the basic model to test for the impact of shareholder rights and press freedom for developed and emerging markets. Further, we report results for the subsamples based on emerging and developed markets.

⁷ All variables are defined in section Appendix A.

⁸ Country-level variables have been standardized to have a mean of zero and a standard deviation of one due to the different scales of magnitude of the raw data.

Table 4
Correlation matrix.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 ACP	1															
2 CSR	0.55***	1														
3 MRC	0.54***	0.85***	1													
4 EXC	0.50***	0.79***	0.77***	1												
5 LTA	-0.31***	-0.15*	-0.10	-0.06	1											
6 ROA	0.13*	-0.03	-0.01	-0.06	-0.21***	1										
7 LEV	0.30***	0.03	-0.01	0.07	-0.15*	-0.03	1									
8 IDR	-0.18*	-0.38***	-0.43***	-0.29***	-0.09	-0.08	0.17**	1								
9 FSR	0.38***	0.22***	0.25***	0.23***	-0.31***	0.29***	0.20**	0.05	1							
10 BTM	-0.15*	-0.08	-0.11	-0.03	0.36***	-0.61***	-0.06	0.09	-0.34***	1						
11 NED	0.40***	0.28***	0.30***	0.42***	-0.19*	-0.00	0.18**	-0.13*	0.09	-0.13	1					
12 CAP	0.03	-0.05	-0.03	-0.05	0.08	0.34***	0.07	0.13*	0.22***	-0.08	0.09	1				
13 INQ	0.51***	0.53***	0.56***	0.33***	-0.31***	0.04	0.08	-0.44***	0.07	-0.23***	0.24***	-0.13*	1			
14 SMG	0.32***	0.37***	0.39***	0.28***	-0.15*	0.13	0.07	-0.28***	0.15**	-0.29***	0.17**	0.01	0.45***	1		
15 ADR	0.38***	0.23***	0.27***	0.34***	0.05	0.03	0.26**	0.11	0.24**	-0.01	0.17**	0.11	0.17**	0.11	1	
16 FPR	-0.59***	-0.56***	-0.65***	-0.53***	0.24***	-0.01	-0.17**	0.36***	-0.25***	0.22***	-0.35***	-0.76***	-0.56***	-0.41***	-0.41***	1

This table presents the Pearson correlation coefficients between the dependent and independent variables. ACP is the anti-corruption program score calculated by Transparency International for each firm covering bribery, facilitation payments, whistle blower protection and political contributions. CSR is the corporate social responsibility score, which includes social, corporate governance and environmental scores collected from Asset4 Thomson Reuters Database. MRC is the moral capital sub-score of CSR, which is the sum of scores on community, diversity and human rights components. EXC is the exchange capital sub-score of CSR, which is the sum of scores on employee quality, health & safety, training and development and product responsibility components. LTA is the size of the firms measured using the logarithm of total assets. ROA is the profitability, calculated as earnings before interest and tax (EBIT) divided by total assets. LEV is the firm leverage, measured as long-term debt divided by total assets. IDR is the idiosyncratic risk, which is calculated as the standard error of the market model regression of daily stock returns over the period from day -260 to day -62 for each anti-corruption index firm. FSR is the percentage of foreign sales to total assets. BTM is measured as the book value is divided by the market value. NED is the percentage of non-executive directors serving in the board. CAP is the ratio of capital expenditure of a firm, which is calculated as total capital expenditure scaled by total assets. INQ is a composite index derived from factor analysis of institutional quality variables comprising Corruption Perception Index (CPI), Voice and Accountability Index (VAC), Political Stability Index (POS), Government Effectiveness Index (GVE), Regulatory Quality Index (REQ) and Rule of Law index (RUL). SMG is the level of stock market development, which is calculated as total market capitalization of a country divided by the gross domestic product (GDP). ADR is the anti-director rights. FPR is freedom of the press rating. *** Correlation is significant at the 1% level. ** Correlation is significant at the 5% level. * Correlation is significant at the 10% level.

Table 5
Anti-corruption score and CSR.

Model	1	2
Constant	0.0663 (0.22)	0.0587 (0.19)
CSR	0.2546 (2.81) ^{***}	–
MRC	–	0.1809 (1.87) [*]
EXC	–	0.0310 (0.30)
LTA	–0.0437 (–2.00) ^{**}	–0.0392 (–1.84) [*]
ROA	0.3733 (1.50)	0.4283 (1.52)
LEV	0.2642 (2.19) ^{**}	0.2333 (1.85)
IDR	–0.0081 (–0.20)	–0.0083 (–0.20)
FSR	0.1415 (2.43) ^{**}	0.1630 (2.76) ^{***}
BTM	0.1018 (1.76) [*]	0.1012 (1.61)
NED	0.3703 (3.38) ^{***}	0.3463 (2.66) ^{***}
CAP	–0.5063 (–1.15)	–0.7803 (–1.76) [*]
INQ	0.2191 (1.74) [*]	0.3146 (2.34) ^{**}
SMG	0.0017 (0.05)	0.0238 (0.69)
ADR	0.0346 (2.23) ^{**}	0.0298 (1.70) [*]
FPR	–0.0014 (–1.19)	–0.0012 (–0.91)
Industry Fixed Effect	Yes	Yes
R-squared	0.588	0.567
P value	0.000	0.000
N	167	167

This table presents the results of ordinary least-squares (OLS) regression. In all regression models the dependent variable is ACP. CSR is the corporate social responsibility score which includes social, corporate governance and environmental scores collected from Asset4 Thomson Reuters Database. MRC is the moral capital sub-score of CSR, which is the sum of scores on community, diversity and human rights components. EXC is the exchange capital sub-score of CSR, which is the sum of scores on employee quality, health & safety, training and development and product responsibility components INQ is a composite index derived from factor analysis of institutional quality variables comprising Corruption Perception Index (CPI), Voice and Accountability Index (VAC), Political Stability Index (POS), Government Effectiveness Index (GVE), Regulatory Quality Index (REQ) and Rule of Law index (RUL). SMG is the level of stock market development which is calculated as total market capitalization of a country divided by the gross domestic product (GDP). ADR is the anti-director rights. FPR is freedom of the press rating. All independent variables are lagged by one year. All controls variables are defined in Appendix A. Robust standard errors are in parentheses. *, **, *** are significant at 10%, 5% and 1% respectively.

5. Empirical results

5.1. Anti-corruption program score and CSR

In this section, we test whether a firm's anti-corruption score is associated with its corporate social responsibility engagement. We estimate Eq. (1) using the overall sample that includes both emerging and developed markets ($n = 167$). Results using our baseline models, which are reported in Table 5, examine whether firm-level CSR engagement scores mitigate corruption risk. Corruption risk is proxied by ACP scores with high scores indicating low corruption risk. Column 1 shows the result with CSR as the main independent variable. The regression estimates show a positive and significant association between the CSR engagement scores and anti-corruption scores (ACP) in the overall sample. The coefficient of CSR is positive and significant at the 1 percent level. The results indicate that firms with higher CSR activities tend to have lower firm-level corruption risk. The results support our expectation in Hypothesis 1a that firms with greater CSR engagement will have lower corruption risk.

Table 6
Anti-corruption score and CSR: developed versus emerging markets.

Model	Developed Markets		Emerging Markets	
	1	2	3	4
Constant	-0.3777 (-0.80)	-0.1563 (-0.35)	0.0396 (0.07)	0.0618 (0.11)
CSR	0.4203 (5.01)***		0.0840 (0.54)	
MRC		0.2751 (2.35)**		0.2120 (1.05)
EXC		0.0615 (0.48)		-0.1458 (-0.64)
LTA	-0.0204 (-0.62)	-0.0378 (-1.14)	-0.0472 (-1.28)	-0.0460 (-1.22)
ROA	0.1919 (0.59)	0.1830 (0.47)	1.0538 (1.27)	0.9340 (1.13)
LEV	0.1650 (1.17)	0.1958 (1.33)	0.4375 (1.34)	0.4439 (1.26)
IDR	0.0370 (0.58)	0.0180 (0.26)	0.0078 (0.12)	0.0048 (0.08)
FSR	0.2029 (2.56)***	0.1929 (2.27)**	0.1185 (1.26)	0.1192 (1.26)
BTM	0.0795 (0.80)	0.0784 (0.64)	0.1557 (1.82)*	0.1577 (1.94)*
NED	0.3440 (1.82)*	0.2731 (1.49)	0.4526 (2.26)**	0.4773 (2.09)**
CAP	-1.7642 (-3.20)***	-1.8551 (-2.96)***	0.2529 (0.35)	0.2687 (0.36)
INQ	0.1979 (1.58)	0.2959 (2.37)**	0.4971 (1.36)	0.4170 (1.09)
SMG	0.0944 (1.82)*	0.1114 (2.00)**	-0.0529 (-1.27)	-0.0572 (-1.50)
ADR	0.0071 (0.28)	0.0032 (0.13)	0.0233 (0.65)	0.0284 (0.73)
FPR	0.0099 (3.14)***	0.0090 (2.73)***	-0.0030 (-0.94)	-0.0030 (-0.99)
Industry	Yes	Yes	Yes	Yes
R-squared	0.454	0.398	0.440	0.437
P-value	0.000	0.000	0.000	0.000
N	93	93	71	71

This table presents the results of ordinary least squares (OLS) regression. In all regression models the dependent variable is ACP. CSR is the corporate social responsibility score which includes social, corporate governance and environmental scores collected from Asset4 Thomson Reuters Database. MRC is the moral capital sub-score of CSR, which is the sum of scores on community, diversity and human rights components. EXC is the exchange capital sub-score of CSR, which is the sum of scores on employee quality, health & safety, training and development and product responsibility components. INQ is a composite index derived from factor analysis of institutional quality variables comprising Corruption Perception Index (CPI), Voice and Accountability Index (VAC), Political Stability Index (POS), Government Effectiveness Index (GVE), Regulatory Quality Index (REQ) and Rule of Law index (RUL). SMG is the level of stock market development, which is calculated as total market capitalization of a country divided by the gross domestic product (GDP). ADR is the anti-director rights. FPR is freedom of the press rating. All other control variables are defined in Appendix A. Robust standard errors are in parentheses. *, **, *** are significant at 10%, 5% and 1% respectively.

We also estimate the association between anti-corruption practice score using the two components of CSR: moral and exchange capital. We use *MRC* and *EXC* as the main test variables. We find a similar significant positive association between *ACP* and *MRC* at the 10 percent level but no association between *ACP* and *EXC*. Interestingly, the individual components of CSR indicate that the effect of moral capital is relatively larger in magnitude (0.1809) in explaining *ACP* compared to the exchange capital (0.0310). These findings also provide support for our Hypothesis 1b which states that a firm with greater moral capital will have lower corruption risk, other things being equal. Our findings are consistent with the view that organizations which score high on moral capital have an ethically oriented culture and such an orientation is associated with lower levels of firm-level corruption risk (Putreva et al., 2012).

Several control variables have significant impacts on *ACP*. In general, high leverage firms have lower corruption risk. Firms appear to have systems in place to control corruption risk when their financial risk is high. Firms with higher foreign sales also have lower corruption risk. Firms with low growth opportunities (high book-to-market ratio) have lower corruption risk. Firms with better corporate governance, as proxied by the proportion of non-executive directors on the board, have lower corruption risk. Firms with higher profitability (*ROA*) have lower corruption risk. In terms of country-level variables, we find that institutional quality and anti-director rights index are positively associated with the anti-corruption score.

Next, we split the full sample into developed and emerging countries and re-estimate Eq. (1). These results are contained in the next sub-section.

5.2. Anti-corruption risk scores and CSR: developed versus emerging markets

Table 6 shows the results of the association between a firm's propensity to undertake anti-corruption programs and CSR initiatives for the two sub-samples (developed and emerging markets). The regression estimates reveal that CSR scores of firms explain the anti-corruption scores in developed countries only. The CSR variable is positive and significant at the 1 percent for firms operating in developed countries, while the relationship is not significant for emerging market firms. The analysis of two components of CSR engagement scores viz., MRC and EXC shows that MRC variable is positive and significant at least at the 5% level for the developed country sample. However, EXC is not significant. The results demonstrate that CSR engagement of the firms operating in developed markets mitigate firm-level corruption risk. On the other hand, CSR engagement of emerging market firms do not systematically influence their anti-corruption practices. These findings support our second hypothesis, which states that the impact of CSR engagement on a firm's corruption risk will be lower (or insignificant) in emerging markets as compared to developed markets. The finding suggests that CSR engagement could be potentially affected by managerialism and greenwashing in emerging market firms much more than developed country firms.

In addition to these differences, there are noteworthy differences in the significance of control variables across the two samples. In developed countries, FSR is statistically significant. Firms with higher foreign sales (FSR) have lower corruption risk. In emerging market countries, firms with low growth opportunities (high book-to-market ratio) have lower corruption risk. Firms in both emerging and developed market with better corporate governance as proxied by the proportion of non-executive directors on the board have lower corruption risk. The three country-level variables – INQ, SMG and FPR – are all positive and statistically significant for the developed markets sample. This result suggests that firms operating in countries with higher institutional quality, high level of stock market development and strong degrees of press freedom have lower corruption risk in the developed market subsample. Interestingly, none of the country-level institutional quality variables are statistically significant in the emerging market subsample. Therefore, we conduct some additional analyses to understand the actual nature of this relationship. Specifically, we test whether country-level institutional quality can moderate the relationship between CSR and ACP in these two sub-samples.

Overall, our results support Hypothesis 2, which states that the impact of CSR engagement on a firm's corruption risk will be lower in emerging markets as compared to developed markets, other things being equal.

5.3. Anti-corruption risk scores and CSR: Impact of country-level factors

From our earlier analysis reported in Table 6, we find that institutional quality matters in controlling levels of firm-level corruption. The purpose of this analysis is to investigate how the various country-level variables moderate the relationship between CSR and a firm's corruption risk in developed and emerging markets. The quality of institutions, protection of shareholder rights, level of market development and civil society are expected to impact the association between CSR and firm's corruption risk differently for emerging and developed markets. In order to examine how country-level variables mediate the relation between CSR and corruption risk, we interact CSR with the country-level variables and examine the impact of this term on corruption risk.

To understand these relationships clearly, we re-estimate the models for developed and emerging markets separately. Panels A and B of Table 7 report the results for developed markets and emerging markets respectively. We expect that an increase in institutional quality, stock market development, anti-director rights index and freedom of press ratings will have a stronger effect on the association between firm's CSR disclosure and anti-corruption risk. Columns 1 to 4 of Panel A of Table 7 show that the interaction variables ($CSR*INQ$, $CSR*SMG$, and $CSR*ADR$) are all significant and positive in each of the respective models. The findings imply that high institutional quality, stock market development and protection of minority shareholders' rights work together with CSR engagement to effectively lower the risk of corporate corruption. However, the interaction term $CSR*FPR$ is not statistically significant. This finding implies that press freedom which is generally much higher in developed markets does not provide any additional influence on CSR's impact on corruption risk. Overall, these findings imply that stock market development, anti-director rights index and institutional quality have a stronger effect on the association between CSR and anti-corruption risk of the firm in developed markets.

There are two reasons why CSR may have less of an impact in mitigating corruption risk in emerging markets. First, CSR measure may be more noisy in emerging markets due to lower levels of scrutiny by analysts and the civil society. Second, the level of institutional development remains low and therefore CSR engagement may not have the same mitigative effects on firm-level anti-corruption practices. We believe that the institutional weakness explanation is more credible. We test this prediction in Panel B of Table 7.

The regression estimates for the emerging market sample is reported in Panel B of Table 7. The results reported in columns 1–4 show that both institutional quality (INQ) and press freedom impart significant influence on the impact of CSR on corruption risk. The results show a significant association between the interaction terms ($CSR*INQ$, and $CSR*FPR$) on ACP at the 1 percent level. The results reported in column 1 show that interaction between CSR and INQ variable is positive and significant implying that firm-level corruption risk is lower in countries where the institutional quality is very high. Unlike developed markets, our results do not find any evidence that countries with higher stock market development and better anti-director rights index moderate the association between CSR and ACP in emerging markets. As expected, we also find that the interaction between CSR and FPR has a negative and significant coefficient implying that higher press freedom strengthens the relationship between CSR and ACP in emerging markets. Our results support the view that the degree of positive relationship between CSR and ACP is moderated by the institutional quality and level of press freedom in emerging countries. Overall, our results in emerging market sample support the view that the impact of CSR engagement on a firm's corruption risk is higher in countries with higher institutional quality and press freedom.

Table 7
Anti-corruption score, CSR and country-level variables.

Panel A: Developed market				
Model	1	2	3	4
Constant	1.7403 (2.39)**	1.2865 (2.07)**	1.9230 (2.01)**	-0.4412 (-0.33)
CSR	-1.1784 (-2.56)***	-0.5738 (-1.97)**	-1.8637 (-1.92)*	1.0090 (0.77)
LTA	-0.0562 (-1.61)	-0.0678 (-1.91)*	0.0439 (0.96)	-0.0207 (-0.52)
ROA	0.0850 (0.29)	0.0926 (0.33)	-0.0611 (-0.18)	0.1193 (0.40)
LEV	0.1874 (1.44)	0.1957 (1.50)	0.2814 (2.05)**	0.1626 (1.17)
IDR	0.0451 (0.72)	0.0351 (0.57)	0.0274 (0.42)	0.0395 (0.60)
FSR	0.2273 (2.82)***	0.2315 (2.90)***	0.2025 (2.66)***	0.2066 (2.70)***
BTM	0.0635 (0.58)	0.0881 (0.80)	-0.0812 (-0.64)	0.0701 (0.70)
NED	0.0679 (0.33)	0.1142 (0.55)	-0.0024 (-0.01)	0.2185 (1.07)
CAP	-1.7664 (-2.88)***	-1.5566 (-2.51)**	-1.4139 (-2.37)**	-1.7716 (-3.09)***
INQ	-1.4922 (-2.91)***	0.2971 (2.00)**	0.1259 (0.85)	0.2264 (1.59)
CSR*INQ	2.1402 (3.27)***	-	-	-
SMG	0.0536 (0.92)	-0.7473 (-3.02)***	-0.0020 (-0.03)	0.0725 (1.15)
CSR*SMG	-	0.9506 (3.25)***	-	-
ADR	-0.0036 (-0.12)	-0.0019 (-0.07)	-0.6073 (-2.24)**	0.0040 (0.16)
CSR*ADR	-	-	0.7128 (2.30)**	-
FPR	-0.0029 (-0.37)	-0.0036 (-0.49)	-0.0039 (-0.60)	-0.5161 (-0.33)
CSR*FPR	-	-	-	0.7642 (0.42)
Industry	Yes	Yes	Yes	Yes
R-squared	0.432	0.431	0.420	0.592
P-value	0.000	0.000	0.000	0.000
N	93	93	93	93

Panel B: Emerging market				
Model	1	2	3	4
Constant	1.4621 (2.19)**	0.6339 (1.15)	0.3497 (0.65)	-0.4612 (-0.68)
CSR	-1.5910 (-2.41)**	-0.6522 (-1.51)	-0.2939 (-1.10)	1.0224 (2.38)**
LTA	-0.1037 (-2.74)***	-0.0639 (-1.82)*	-0.0557 (-1.51)	-0.0575 (-1.56)
ROA	1.2510 (1.60)	1.0810 (1.36)	1.0298 (1.30)	1.2120 (1.57)
LEV	0.7121 (2.36)**	0.4500 (1.76)*	0.5014 (1.96)**	0.4810 (1.89)*
IDR	-0.0881 (-1.28)	-0.0413 (-0.50)	-0.0618 (-0.83)	-0.0434 (-0.61)
FSR	0.1129 (1.26)	0.0676 (0.80)	0.0748 (0.87)	0.0862 (1.02)
BTM	0.2176 (3.17)***	0.1682 (2.32)**	0.1823 (2.56)***	0.1934 (2.88)***
NED	0.4020 (2.30)**	0.4260 (2.35)**	0.5048 (2.82)***	0.5534 (3.31)***
CAP	0.0686 (0.09)	-0.2919 (-0.31)	-0.0272 (-0.03)	-0.4371 (-0.54)

(continued on next page)

Table 7 (continued)

Panel B: Emerging market				
Model	1	2	3	4
INQ	−1.6294 (−1.37)	0.6125 (1.46)	0.6112 (1.44)	0.3858 (0.83)
CSR*INQ	3.7610 (2.30)**	−	−	−
SMG	−0.1515 (−3.24)***	−0.9487 (−1.72)*	−0.1276 (−2.30)**	−0.1105 (−2.33)**
CSR*SMG	−	1.2265 (1.44)	−	−
ADR	0.0181 (0.61)	0.0334 (1.00)	−0.0302 (−0.65)	0.0197 (0.60)
CSR*ADR	−	−	0.0844 (1.27)	−
FPR	−0.0030 (−1.09)	−0.0031 (−0.92)	−0.0042 (−1.35)	0.0054 (1.05)
CSR*FPR	−	−	−	−0.0150 (−2.56)***
Industry	Yes	Yes	Yes	Yes
R-squared	0.6077	0.5626	0.5556	0.5858
P-value	0.000	0.000	0.000	0.000
N	71	71	71	71

This table presents the results of ordinary least squares regression. In all regression models, the dependent variable is ACP. CSR is the corporate social responsibility score which includes social, corporate governance and environmental scores collected from Asset4 Thomson Reuters Database. INQ is a composite index derived from factor analysis of institutional quality variables comprising Corruption Perception Index (CPI), Voice and Accountability Index (VAC), Political Stability Index (POS), Government Effectiveness Index (GVE), Regulatory Quality Index (REQ) and Rule of Law index (RUL). SMG is the level of stock market development which is calculated as total market capitalization of a country divided by the gross domestic product (GDP). ADR is the anti-director rights. FPR is freedom of the press rating. All other control variables are defined in Appendix A. Robust standard errors are in parentheses. *, **, *** are significant at 10%, 5% and 1% respectively.

Overall, the results support the view that the degree of relationship between CSR and ACP is conditional on country-level variables. The level of institutional quality, stock market development and anti-director rights index matter in developed markets whereas institutional quality and press freedom are important factors in emerging markets. The main difference is that stock market development and anti-director rights are important in developed markets but not in emerging markets. Further, the freedom of press plays a significant role in emerging markets in influencing the impact of CSR on corruption but not in developed markets.

6. Econometric issues and robustness checks

We conduct robustness checks to address potential concerns with our empirical results.

6.1. Sample selection bias

We draw our sample of firms based on the TI survey, which includes the largest multinational firms from emerging and developed countries. It is possible that firms, which are included in the sample, are non-randomly selected and are therefore not representative of the full sample. To alleviate this concern, we use the Heckman (1979) two-step procedure. In the first step, we use a dummy variable taking the value of one if the firm has a CSR score that is available in the Asset4 database and is also represented in the corruption risk sample of TI in the following year. Firms that have a CSR score but are not included in the TI sample are coded as zero. Next, we conduct first stage estimation by regressing the dummy variable on the set of control variables and save the residual term. Subsequently, we transform the residual term to Inverse Mills ratio and utilize this as an additional control variable in the second stage regression. These results, which are un-tabulated, show that our main findings remain qualitatively similar after controlling for potential sample selection-bias. The CSR score and its two components have strong positive and significant impact on the ACP variable.

6.2. Endogeneity issue

One of the issues in our analysis is whether the relationship between CSR and Anti-corruption practices is genuine. We want to ensure that correlated omitted variables are not driving the results. In order to address this concern, we run our tests with a comprehensive set of control variables. In addition, we mitigate the concerns of potential endogeneity issue by using a two-stage least square (2SLS) method with an instrument variable approach (Cheung, 2016). A valid instrument needs to be exogenous which cannot have any effect on the ACP practices of the firm other than through the endogenous CSR performance variable. The chosen instrumental variable is the lagged annual average country-industry CSR score. We argue that average country-industry CSR performance serves as a valid instrument (El Ghouli et al., 2011, Cheng et al., 2014). This instrument is independent of a firm's decision to

Table 8
Anti-corruption Score and CSR: 2SLS with Instrumental Variables (IVs).

Model	1 First-stage DV = CSR	2 Second-stage DV = ACP	3 First-stage DV = MRC	4 Second-stage DV = ACP
Constant	−0.1628 (−0.85)	0.0287 (0.10)	−0.2510 (−1.60)	0.3186 (1.11)
CSR_A	1.0026 (11.99)***	–	–	–
CSR_I	–	0.2580 (2.53)**	–	–
MRC_A	–	–	0.9572 (13.28)***	–
MRC_I	–	–	–	0.2318 (2.18)**
LTA	0.0049 (0.45)	−0.0428 (−2.09)**	0.0168 (1.71)*	−0.0477 (−2.57)***
ROA	−0.2580 (−1.40)	0.5123 (2.09)**	−0.3005 (−1.82)*	0.6724 (2.56)***
LEV	0.0216 (0.25)	0.2824 (2.48)**	−0.0706 (−0.86)	0.3807 (3.36)***
IDR	−0.0738 (−2.67)***	0.0088 (0.22)	−0.0132 (−0.58)	0.0116 (0.35)
FSR	0.0011 (0.03)	0.1572 (3.02)***	0.0321 (1.08)	0.1888 (3.45)***
BTM	0.0128 (0.22)	0.1290 (2.33)**	−0.0030 (−0.06)	0.1886 (2.81)***
NED	0.1382 (1.92)*	0.3773 (3.84)***	0.1498 (2.50)**	0.3305 (3.30)***
CAP	0.2927 (1.17)	−0.1101 (−0.36)	0.3671 (1.68)*	−0.1542 (−0.48)
INQ	0.0099 (0.15)	0.2493 (2.10)**	0.0224 (0.31)	0.0935 (0.67)
SMG	−0.0024 (−0.15)	−0.0020 (−0.06)	−0.0045 (−0.31)	−0.0436 (−1.74)*
ADR	0.0096 (1.02)	0.0380 (2.58)***	0.0297 (0.77)	0.1462 (2.12)**
FPR	0.0006 (0.99)	−0.0011 (−0.92)	−0.0001 (−0.11)	−0.0034 (−2.70)***
Industry	Yes	Yes	Yes	Yes
R-squared	0.745	0.616	0.746	0.610
F-stat	143.74	(p = 0.00)	176.36	(p = 0.00)
N	164		164	

This table presents the results of two-stage least-squares regression using an instrumental variable approach. The dependent variables (DVs) in the first-stage (model 1 and 3) are CSR and MRC. CSR is the corporate social responsibility score which includes social, corporate governance and environmental scores collected from Asset4 Thomson Reuters Database. MRC is the moral capital sub-score of CSR, which is the sum of scores on community, diversity and human rights components. CSR_A and MRC_A are the instrumental variables of CSR and MRC respectively. They are calculated as the average country-industry lagged values. CSR_I and MRC_I are fitted variables of CSR and MRC based on first stage regressions. The dependent variable in the second stage (model 2 and 4) is the anti-corruption scores (ACP). All other control variables are defined in Appendix A. Robust standard errors are in parentheses. *, **, *** are significant at 10%, 5% and 1% respectively.

invest in CSR, as it is not under the influence of the firm's management. We also use average country-industry MRC and EXC for the two CSR components. These instrumental variables are strongly correlated with our endogenous regressor but uncorrelated with the error term in the second stage (Larcker and Rusticus 2010). We do not find any evidence of weak instrument as the F-statistic of the first stage regression far exceeds 10.0.

Table 8 shows the results for the two-stage least square regression model. In the first stage, the endogenous test variable (CSR) is regressed on selected instrumental variables (CSR_A, EXC_A and MRC_A) and the exogenous control variables are drawn from our analysis reported in Table 5. Column 1 shows that the annual average country-industry lagged CSR (CSR_A) has a significant and positive coefficient of 1.0026 which is also statistically significant at 1% level. The associated *t*-statistic is 11.9, and the *F*-statistic for this model is 143.74. The first stage regression diagnostics do not indicate any evidence of a weak instrument (P-value = 0.000).⁹ The result indicates that firms with the higher CSR level also have larger annual industry and country-level CSR activities. In the second stage, we perform our analysis similar to Table 5, using the fitted value (CSR_I) from the first stage to replace the endogenous variable (CSR). Column 2 shows the result for the second stage regression. The result shows that the predicted value of CSR from the first stage regression is positively and significantly related to ACP at the 5% percent level. We also estimate the two-stage least square

⁹ Detailed results available upon request.

regressions using the moral component of corporate social responsibility using the instrumental variable approach. Columns 3 and 4 report the two-stage regression results. We find qualitatively similar results. Overall, the results suggest that our main findings remain robust after controlling for the endogenous relation between *CSR* and *ACP*.

6.3. Additional tests

A number of additional tests are conducted to check the robustness of our findings. First, we re-estimate the regressions results reported in [Table 5](#) using the Transparency International overall index as a measure of corporate transparency rather than the *ACP* as the dependent variable. The regression estimates provide strong support to our main findings as reported earlier. Second, we also re-estimate the regressions reported in [Tables 7](#) using anti-self-dealing index (Djankov et al., 2008) as a proxy for investor protection. The results are qualitatively similar to our reported results. Third, we re-estimate the models reported in [Table 7](#) using *MRC* as the main variable of interest.¹⁰ When we use *MRC* instead of *CSR*, we find similar results. For the developed market sample, the three interaction variables (*MRC*INQ*, *MRC*SMG*, *MRC*ADR*) provide consistent results as reported in [Table 7](#). Further, the magnitude of coefficients of interaction variables are much higher when we use *MRC* as a proxy for moral capital instead of *CSR*. The results for emerging markets are broadly consistent with the results reported in Panel B of [Table 7](#). These findings imply that moral capital has a stronger impact and explanatory power on mitigating firm-level corruptions risk when interacted with relevant country-level variables.

Finally, we run our baseline results excluding firms from countries such as Argentina, Luxembourg etc. which have low sample sizes. Untabulated results confirm our baseline results.¹¹ Overall, it appears that our results are robust to the use of alternate dependent and intermediating variables and the exclusion of firms from countries with low sample sizes.

7. Conclusion

Given the increased demand from the stakeholders and regulators for the legal and ethical compliance of global companies while conducting business, it is necessary for organizations to implement a comprehensive range of anti-corruption policies and management systems to mitigate the risks posed by the lack of transparency and potential for corruption within organizations. This will ensure that stakeholders have a clearer understanding of the extent to which a company's operations are ethically responsible and make the company more accountable for its activities in a given country. This paper is motivated by the lack of empirical work on the impact of firm-level corporate social responsibilities on corruption risk. This issue is especially relevant since companies are under increasing pressure from multiple stakeholders to be socially and environmentally responsible.

A number of studies provide evidence that corruption is associated with lower long-term economic growth (see, for example, Krueger, 1974; Mauro, 1995; Murphy et al., 1991). Another strand of literature shows that managerial empire building and perquisite consumption are expected to be higher in a weak regulatory oversight environment. La Porta et al. (2001) show that corruption can reduce the legal protection of shareholders, particularly minority shareholders. Given the above findings, it is important to understand which firm-level and country-level factors mitigate the degree of corruption risk of firms.

Our paper contributes to the literature in a number of ways. First, our paper is the first one to document that a firm's *CSR* engagement is found to reduce firm-level corruption risk. The effect of *CSR* engagement appears to resolve the agency conflict between shareholders and the society, at least for large multinational firms operating globally. Second, our paper identifies that such a relationship is stronger in developed markets compared to emerging markets. Finally, the institutional setting appears to be a relevant moderating factor in this context. The lower level of market development and investor protection in emerging markets reduce the effectiveness of *CSR* engagement in its corruption risk mitigation role.

Although our analyses provide important insights into the relations between *CSR*, *ACP* and role of investor protection and press freedom offered by countries, several limitations should be noted. First, the *ACP* data reported by TI, although rich in construction, are limited to only two financial years and covers a small number of sample firms (224 firms). The non-availability of *CSR* data and necessary accounting data further limit our sample size to 167. In addition, a number of countries suffer from limited sample size with just one firm in the sample restricting our ability to capture the effect of country-specific factors in our analysis. Having a longer time series may allow us to capture the effects of firm-specific changes in corporate social responsibilities on corruption risk.

Our paper has several policy implications. The regulators in some countries such as India have now mandated compulsory *CSR* spending by companies. Given the complex nature of social spending and the underlying managerial motivations, this directive appears to be ill-advised. Our work shows that *CSR* as an indicator of social capital is contingent on the existence of well-developed markets and institutions. We conjecture that the prevalence of ethical consumers, socially responsible investors, NGOs, watchdogs and auditing of social activities in developed markets jointly contribute to the effectiveness of *CSR* engagement as a device to mitigate corporate corruption risk. The relative contribution of these elements is a fruitful area for future research.

¹⁰ Untabulated, but available upon request.

¹¹ These are available upon request.

Appendix A

Variables	Abbreviation	Definition
Anticorruption Risk Score	ACP	Public reporting on anti-corruption programmes covering bribery, facilitation payments, whistle blower protection and political contributions
Corporate Social Responsibility Score	CSR	CSR score measured using ASSET4 which include environmental, social and corporate governance scores
Moral Capital	MRC	Sub-score of CSR, which is the sum of scores on community, diversity and human rights components. See further details from Godfrey, Merrill and Hansen (2009)
Exchange Capital	EXC	Sub-score of CSR, which is the sum of scores on employee quality, health & safety, training and development and product responsibility components. See further details from Godfrey, Merrill and Hansen (2009)
Logarithm of total assets	LTA	Firm size measured as logarithm of total assets of a firm
Return on assets	ROA	Firm profitability measured as earnings before interest and tax (EBIT) divided by total assets of a firm
Leverage	LEV	Firm leverage measured as long-term debt divided by total assets of a firm
Idiosyncratic risk	IDR	The idiosyncratic risk is calculated as the standard error of the market model regression of daily stock returns over the period from day -260 to day -62 for each firm
Foreign sales ratio	FSR	Percentage of foreign sales to total sales
Book-to-market ratio	BTM	BTM is measured as the book value divided by the market value
Non-executive directors	NED	Percentage of non-executive directors serving in the board
Capital expenditure ratio	CAP	The capital expenditure ratio of a firm is calculated as total capital expenditure scaled by total assets
Institutional quality	INQ	A composite index derived from factor analysis of institutional quality variables comprising Corruption Perception Index (CPI), Voice and Accountability Index (VAC), Political Stability Index (POS), Government Effectiveness Index (GVE), Regulatory Quality Index (REQ) and Rule of Law index (RUL)
Share market capitalization divided by GDP	SMG	Percentage of a country's share market capitalization to GDP in 2012
Anti-director right index	ADR	Anti-director right index
Freedom of the press rating	FPR	The Freedom of the Press ratings are determined through evaluating scores using a set of questions that seek to capture the viewed ways in which pressure can be placed on the flow of independent information without fear of repercussions. The ratings are conducted by annually and each country receives a numerical score from 0 (the most free) to 100 (the least free)

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